

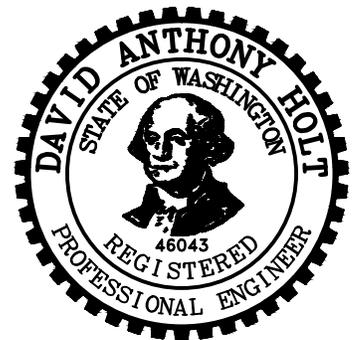
Harvey Ranch Estates Traffic Impact Analysis

Northwest Corner of Lower Waitsburg Road /
US Highway 12 Intersection
Walla Walla, Washington

Prepared for:

Richland 132, LLC
1615 Whiteley Road
Walla Walla, Washington 99362

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PBS Project 66230.000



415 W 6TH STREET, SUITE 601
VANCOUVER, WA 98660
360.695.3488 MAIN
866.727.0140 FAX
PBSUSA.COM

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Executive Summary

Purpose and Scope

The purpose of this study was to determine the impacts of the traffic generated by the Harvey Ranch Estates project on the surrounding roadway infrastructure. The applicant proposes to develop approximately 61± acres of vacant land into approximately 250 single-family home lots. During the preparation of this report, the lot count has varied from 247 to 253 as the civil engineer designed site improvements. The site is located on the northwest corner of the Lower Waitsburg Road / Clinton Street / US Highway 12 intersection. The single-family lots will be developed over several phases, and they are expected to be fully occupied by the year 2027.

This report analyzes the traffic impacts generated by the completed development as required by the City of Walla Walla, Washington (City).

The following intersections were identified for this traffic impact analysis (TIA):

1. Lower Waitsburg Road / Northern Subdivision Access
2. Lower Waitsburg Road / Southern Subdivision Access
3. Lower Waitsburg Road / Middle Waitsburg Road
4. Lower Waitsburg Road / Clinton Street / US Highway 12
5. Blue Mountain Drive / Middle Waitsburg Road
6. Blue Mountain Drive / Rainier Street
7. Wellington Avenue / Melrose Street
8. Wellington Avenue / Isaacs Avenue
9. Wilbur Avenue / US Highway 12
10. Wilbur Avenue / Melrose Street
11. Myra Road / Heritage Road / Pine Street

Findings

The findings of this TIA are listed below.

Present Volumes Are Estimated

Because of the ongoing COVID-19 pandemic temporarily closing schools and multiple businesses, present intersection traffic volumes were estimated based on historical data rather than by counting existing volumes.

Historical data available at study area intersections indicated a growth rate of 1.0% (annually compounded), so for locations where historical data were available, past volumes increased by 1.0% (annually compounded) to estimate March 2020 volumes.

Comparisons between current counts and present projections (based on 1.0% growth) at select study area intersections indicated the COVID-19 pandemic has depressed volumes by approximately 30% across the study area. For locations where historical data were unavailable, current counts were increased by 30% to estimate March 2020 volumes.

To apply a level of uniformity to the study, intersection approach volumes were balanced at groups of intersections close together, using as the fixed references the estimated March 2020 volumes at the intersection within each group with higher volumes. These balanced volumes and the unadjusted volumes at isolated intersections were used as the 2020 baseline volumes for this study.

Present-day traffic volumes at Myra Road / Heritage Road / Pine Street were taken from a study done by PBS Engineering and Environmental Inc. (PBS) for Myra-Offner Master Plan (PBS Project 67619.000), dated May 8, 2020. A 2.5% annual growth rate was applied to historical data to estimate the present volumes at this intersection as opposed to a 1.0% annual growth rate that was found in the eastern region of Walla Walla.

Future Traffic Volumes Increase

Traffic volumes in the study area will continue to increase without or with the project. Trips for one in-process project, the Lower Waitsburg Road (LWR) Industrial Park (or Bouchon Industrial Park), Phase II, were included in this analysis.

Generic background growth (at 1% for 3 years) was assumed to add approximately 3.0% to the 2020 baseline volumes to estimate 2023 Without Project volumes.

Generic background growth (at 1% for 5 years) was assumed to add approximately 5.1% to the 2020 baseline volumes to estimate 2025 Without Project volumes.

Generic background growth (at 1% for 7 years) was assumed to add approximately 7.2% to the 2020 baseline volumes to estimate 2027 Without Project volumes.

Generic background growth (at 1% for 17 years) was assumed to add approximately 18.4% to the 2020 baseline volumes to estimate 2037 Without Project volumes.

Access and Circulation

The project will use the proposed northern and southern accesses along Lower Waitsburg Road as the two access points into and out of the site. An internal local roadway network will be developed to serve the proposed residential lots. The site roadway will include sidewalks for pedestrian circulation and access to each lot. No access will be permitted to US Highway 12.

Trip Generation

The proposed Harvey Ranch Estates project is estimated to generate 2,638 weekday trips, including 192 trips during the AM peak hour, 256 trips during the PM peak hour based on a nominal 250-lot subdivision.

Intersection Operations

With one exception, all studied intersections are projected to operate at an acceptable level of service (LOS) in all scenarios both with and without the project. The exception is the Wilbur Avenue / US Highway 12 intersection, which is estimated to operate at LOS E, below City and Washington State Department of Transportation (WSDOT) LOS D standards for the northbound left-turn lane in the 2023 Without Project scenario during the PM peak hour. The intersection continues to operate below City and WSDOT standards without and with project trips through the 2027 scenarios.

The City's long-range transportation plan proposes a grade-separated interchange to improve the north-south connections, including multimodal connections, at the Wilbur Avenue / US Highway 12 intersection (see project RE-88, Exhibit 49, in the *2040 Comprehensive Plan Update*, pg. TP-25). The grade-separated interchange would address the future LOS deficiency at the Wilbur Avenue / US Highway 12 intersection.

However, in discussions with City staff related to this intersection, it was noted that lower cost alternatives are being considered:

- Lane modifications
- A roundabout

Both alternatives are too conceptual to recommend a partial contribution by the Harvey Ranch Estates project to address the increased delay associated with its trips, but the City suggested mitigation at an alternative location to address impacts to the Wilbur Avenue / US Highway 12 intersection.

Collision Analysis

The 2015–2019 collision history at the study intersections was reviewed; Wellington Avenue / Melrose Street has a collision rate that is higher than the critical rate.

A pattern of angle collisions was found at three intersections: Wellington Avenue / Melrose Street, Wilbur Avenue / US Highway 12, and Wilbur Avenue / Melrose Street.

One suspected serious injury incident was reported at Wilbur Avenue / Melrose Street.

Transit, Pedestrian, and Bicycle Facilities

Sidewalks, bike lanes, and off-street paths are available along several roadways within the study area. The development will construct new pedestrian and/or bicycle facilities along internal streets and along the Lower Waitsburg Road frontage.

Sight Distance at Site Accesses

Digital review of the current conditions along Lower Waitsburg Road suggests that adequate sight distances should be achievable through design and construction.

Recommendations

The TIA supports the following recommendations.

Traffic Impact Mitigation

Make no mitigation contribution to the future Wilbur Avenue / US Highway 12 grade-separated interchange project, despite the LOS deficiency at this intersection. Instead, the City and applicant should negotiate mitigation at an alternative location to address impacts at the Wilbur Avenue / US Highway 12 intersection.

Access Alignment

Align the proposed Harvey Ranch Estates accesses on the west side of Lower Waitsburg Road and the two driveways approved with the LWR Industrial Park, Phase II, project on the east side of Lower Waitsburg Road.

Collision Mitigation

PBS recommends that the City monitor collisions at the Wellington Avenue / Melrose Street intersection and investigate installation of multi-way stop signs.

PBS recommends that the City monitor collisions at the Wilbur Avenue / Melrose Street intersection and install stop ahead signs on southbound Wilbur Avenue 100 feet north of Melrose Street.

Accessibility

Assure all driveways, sidewalks, crosswalks, and curb ramps constructed with the Harvey Ranch Estates site developments comply with current Americans with Disabilities Act (ADA) guidelines.

Multimodal Connections

Provide at least one connection for bicyclists and pedestrians between the Harvey Ranch Estates site and the adjacent multi-use path parallel to US Highway 12.

Path Crossing Treatments

Install a pedestrian/bicycle crossing advance warning sign (*Manual on Uniform Traffic Control Devices* [MUTCD] sign W11-15) along southbound Lower Waitsburg Road approximately 250 feet north of the path crossing. Install WSDOT-standard crosswalk pavement markings at the crossing.

Sight Lines at Accesses and Intersections

Design the proposed access points and intersections consistent with Chapter 9.5.3 of the American Association of State Highway and Transportation Officials (AASHTO) *Geometric Design* guide for intersection sight distance. Install no objects within the sight distance triangles that would block exiting drivers' view at the access points.

1 INTRODUCTION

The purpose of this study was to determine the impacts of the traffic generated by the Harvey Ranch Estates project on the surrounding roadway infrastructure. The project site is shown on the vicinity map (Figure 1). This study determined if mitigation is required to keep the roadways operating safely and at capacity levels acceptable under the current level of service standards. This report documents the findings and conclusions of a traffic impact analysis (TIA) conducted for the proposed site plan (Figure 2) application for property located in Walla Walla, Washington (City).

1.1 Scope of Study

This study documents the existing and proposed conditions, traffic data, safety analysis, and intersection operations in accordance with the City's requirements of site TIA guidelines.

The following intersections were identified for analysis:

1. Lower Waitsburg Road / Northern Access
2. Lower Waitsburg Road / Southern Access
3. Lower Waitsburg Road / Middle Waitsburg Road
4. Lower Waitsburg Road / Clinton Street / US Highway 12
5. Blue Mountain Drive / Middle Waitsburg Road
6. Blue Mountain Drive / Rainier Street
7. Wellington Avenue / Melrose Street
8. Wellington Avenue / Isaacs Avenue
9. Wilbur Avenue / US Highway 12
10. Wilbur Avenue / Melrose Street
11. Myra Road / Heritage Road / Pine Street

This TIA includes analysis of future background conditions growth based on an assumed 1.0% annually compounded growth rate and no addition of traffic from in-process projects.

This TIA was prepared for submission to the City of Walla Walla. The traffic-related issues addressed in this report include:

- Baseline (2020) traffic conditions
- Proposed site-generated traffic volumes and their distribution
- Future 2023 conditions without and with Stage 1 of the project
- Future 2025 conditions without and with Stages 1 and 2 of the project
- Future 2027 conditions without and with Stages 1, 2, and 3 of the project
- Ten Years After Stage 3 Completion (estimated as 2037) with Stages 1, 2, and 3
- Level of service (LOS) analysis of the existing and future conditions for weekday PM peak hours
- Safety evaluation of the existing and future conditions
- Recommendations for mitigation of traffic impacts and conclusions

Note that it was determined during the TIA scoping process that only two of the study area intersections were required to be evaluated during the weekday AM peak hour conditions. These two intersections are the access points for the development where the most turning movements are expected to be added. The two were the Lower Waitsburg Road / Northern Access and Lower Waitsburg Road / Southern Access intersections, numbered 1 and 2, respectively, above.

1.2 Existing Site Conditions

The existing site is located on the northwest corner of Lower Waitsburg Road / Clinton Street / US Highway 12 intersection and spans approximately 0.4 mile along the north of US Highway 12 and approximately 0.25 mile along the west of Lower Waitsburg Road. The existing site is undeveloped and zoned "RN Residential Neighborhood" with the specific tax lot number is 360717410002.

1.3 Existing Infrastructure

The existing infrastructure and operational traffic conditions in the study area were documented. Roadway conditions were studied to confirm that the roadway is currently operating in a safe and efficient manner.

1.3.1 Land Uses

The land uses surrounding the site are documented to help identify the site location and provide reference for any discussion of conditions that might impact the adjacent properties. The land uses surrounding the site are shown in Table 1.

Table 1. Land Uses Around the Site

North of Site		S I T E	East of Site	
Zoning	PR		Zoning	IL
Description	Public Reserve		Description	Light Industrial/Commercial
Existing Use	Veterans Memorial Golf Course and Undeveloped land		Existing Use	Winery Compliance Service, Residential Lots, and Undeveloped land
West of Site		South of Site		
Zoning	PR	Zoning	RN, PR	
Description	Public Reserve	Description	Residential Neighborhood, Public Reserve	
Existing Use	Veterans Memorial Golf Course	Existing Use	DeSales Catholic High School, Residential Lots	

1.3.2 Existing Roadways

The existing roadway providing access to the site is Lower Waitsburg Road. Data was gathered on this and other roadways in the study area to inform operations analysis of the existing roadway system. The pertinent information regarding the study area roadways is tabulated in Table 2.

Table 2. Existing Roadway Information

Roadway Name	Classification	Speed Limit (mph)	Lane Configuration		
			Lanes	Sidewalks	Bike Lanes
Lower Waitsburg Road	CoWW: Major Arterial WSDOT: Urban Minor Arterial	50 ^e	2	No	No
Middle Waitsburg Road	CoWW: Minor Arterial	35	2	Partial	No
US Highway 12	WSDOT: Urban Other Freeways / Expressways	60	4	No	No
N Clinton Street	CoWW: Major Arterial WSDOT: Urban Minor Arterial	30	2	Partial	No
Rainier Street	CoWW: Collector	30 ^e	2	No	No
Blue Mountain Drive	CoWW: Collector	30 ^e	2	Yes	No
Wellington Avenue	CoWW: Minor Arterial	30	2	Yes	No
Wilbur Avenue	CoWW: Minor Arterial WSDOT: Urban Major Collector	30	3 ^d	Yes	Partial
Melrose Street	CoWW: Major Arterial	25	2	Yes	No
Isaacs Avenue	CoWW: Major Arterial	30	4	Yes	No
Myra Road	CoWW: Major Arterial WSDOT: Urban Minor Arterial	35	4	Yes	No
Heritage Road	CoWW: Major Arterial	40	2	No	Yes
Pine Street	CoWW: Freeway/Expressway ^a CoWW: Major Arterial ^b WSDOT: Urban Other Principal Arterial	30	2	Yes	No

mph = miles per hour, CoWW = City of Walla Walla, WSDOT = Washington State Department of Transportation

^a From west of Myra Road to east of 9th Avenue.

^b From west of 9th Avenue to east of 2nd Avenue.

^c Bike lanes start south of Wilbur Avenue / Melrose Street and continue south.

^d One lane provides a two-way-left-turn lane median.

^e Speed limit not posted. Speed limit assumed based on other roadways in the study area with similar functional classification.

1.3.3 Major Intersections and Traffic Control

For each of the intersections being evaluated in the study area (listed in the scope of study, above) essential information relevant to the intersection operations analysis was gathered. Table 3 presents the existing geometrics and traffic controls at the study intersections.

Table 3. Major Intersections: Existing Lanes and Traffic Controls

Intersection	<i>Lower Waitsburg Road / Middle Waitsburg Road</i>			
Leg	NB	SB	WB	EB
Control	Unc.	Unc.	Stop	N/A
Number of Lanes	1	1	1	N/A

Intersection	<i>Lower Waitsburg Road / Clinton Street / US Highway 12</i>			
Leg	NB	SB	WB	EB
Control	Stop	Stop	Unc.	Unc.
Number of Lanes	1	1	3	3

Intersection	<i>Blue Mountain Drive / Middle Waitsburg Road</i>			
Leg	NB	SB	WB	EB
Control	Stop	N/A	Unc.	Unc.
Number of Lanes	1	N/A	1	1

Intersection	<i>Blue Mountain Drive / Rainier Street</i>			
Leg	NB	SB	WB	EB
Control	Stop	Stop	Unc.	Unc.
Number of Lanes	1	1	1	1

Intersection	<i>Wellington Avenue / Melrose Street</i>			
Leg	NB	SB	WB	EB
Control	Stop	Stop	Unc.	Unc.
Number of Lanes	1	1	1	1

Intersection	<i>Wellington Avenue / Isaacs Avenue</i>			
Leg	NB	SB	WB	EB
Control	N/A	Stop	Unc.	Unc.
Number of Lanes	N/A	2	2	2

Intersection	<i>Wilbur Avenue / US Highway 12</i>			
Leg	NB	SB	WB	EB
Control	Stop	N/A	Unc.	Unc.
Number of Lanes	2	N/A	3	3

Intersection	<i>Wilbur Avenue / Melrose Street</i>			
Leg	NB	SB	WB	EB
Control	Stop	Stop	Stop	Stop
Number of Lanes	1	1	1	1

Intersection	<i>Myra Road / Heritage Road / Pine Street</i>			
Leg	NB	SB	WB	EB
Control	Yield	Yield	Yield	Yield
Number of Lanes	2	2	1	1

N/A = Not applicable – approach does not exist
 Stop = Stop-controlled leg of intersection
 Unc. = Uncontrolled leg approaching intersection – does not stop or yield
 Yield = Yield-controlled leg of a roundabout intersection

The project area is defined as the vicinity of the site encompassed by the study intersections. The operation of the intersections can be controlled by signing, roundabouts, or signalization. Table 3 refers to the type of control and number of approach lanes for each leg of each intersection. The existing lane configurations and traffic controls for all intersections are shown in Figure 3.

1.4 Traffic Volumes

1.4.1 Baseline Traffic Volumes

Because of the ongoing COVID-19 (novel coronavirus) pandemic, traffic volumes are somewhat depressed throughout the nation, and current volume data represent highly atypical conditions. The City's *TIA Guidelines* (see References) typically require intersection counts to have been collected within 18 months. It was agreed in negotiation with staff from the City and DKS Associates, the City's contracted traffic engineering consultant, to waive the usual requirement and instead to follow the methodology described here to estimate reasonable present-day traffic volumes for use in this TIA. These volume estimates address all locations, both where historical data were available and where they were not.

1.4.1.1 Method Where Historical Data Were Available

Historic growth rates were calculated from the following five studied intersections that had two or more points of historical data available. The dates range from September 2014 through October 2018. All data are for the weekday PM peak period.

- Lower Waitsburg Road / Middle Waitsburg Road
- Lower Waitsburg Road / Clinton Street / US Highway 12
- Blue Mountain Drive / Middle Waitsburg Road
- Wellington Avenue / Melrose Street
- Wilbur Avenue / Melrose Street

Changes in total entering traffic volumes varied somewhat, with annual growth rates ranging between -8.9% and 9.9%. The average and median calculations suggest an overall value of 1.0% (geometric, or annually compounded).

Thus, for each studied intersection with historical data available, a 1.0% annual growth rate was applied to historical data to estimate present volumes (approximately on March 31, 2020). Copies of the historical data and of the growth rate calculations are provided in Appendix A.

1.4.1.2 Method Where Historical Data Were Unavailable

To aid in estimating the current decrease in traffic volumes, traffic counts were collected during the weekday PM peak period at the following two studied intersections on March 31, 2020. Each intersection had at least one historical count available. PBS retained All Traffic Data (ATD) to gather the data.

- Lower Waitsburg Road / Middle Waitsburg Road
- Lower Waitsburg Road / Clinton Street / US Highway 12

At these locations, the total entering volumes were 17% to 29% below the present values estimated above. Rounding up, the decrease is taken to be approximately 30% across the study area.

For each studied intersection with no historical data available, PBS staff collected traffic counts between March 31 and April 9, 2020. Counts were collected during the weekday PM peak period for all intersections lacking historical data. Additionally, weekday AM peak period counts were collected at Lower Waitsburg Road / Middle Waitsburg Road intersection to enable AM analyses at the two proposed site accesses (Northern Subdivision Access and Southern Subdivision Access). In each case, an increase of 30% was applied to the current counts to estimate present volumes. Copies of the historical data, the recent data, and the regional decrease calculations are provided in Appendix A.

1.4.1.3 Present Volumes

Present volumes were estimated at each of the 11 studied intersections by one of the two methods described above. Where deemed reasonable to do so, volumes were balanced between pairs of close intersections to estimate a level of uniformity among the data. Volumes were balanced with reference to the intersection that had a higher number, whichever that is (exiting from upstream vs. entering from downstream). The groups of close intersections balanced were:

- Lower Waitsburg Road intersections at Northern Access, Southern Access, Middle Waitsburg Road, and Clinton Street / US Highway 12 (intersections 1, 2, 3, and 4)
- Blue Mountain Drive / Middle Waitsburg Road and Blue Mountain Drive / Rainier Street (intersections 5 and 6)

The volume balancing calculations are provided in Appendix A.

At the remaining studied intersections (listed below), the present volumes estimated in the above sections were preserved without adjustments. These intersections were deemed to be located too far from other studied intersections and/or to have too many intermediate intersections or driveways for volume balancing to be considered reasonable.

- Wellington Avenue / Melrose Street
- Wellington Avenue / Isaacs Avenue
- Wilbur Avenue / US Highway 12
- Wilbur Avenue / Melrose Street

Note that for Myra Road / Heritage Road / Pine Street, present-day traffic volumes were taken from a study done by PBS for Myra-Offner Master Plan (PBS Project 67619.000), dated May 8, 2020. A 2.5% annual growth rate was applied to historical data to estimate the present volumes at this intersection as opposed to a 1.0% annual growth rate that was found in the eastern region of Walla Walla.

The resulting present peak hour volumes for the studied intersections are termed the 2020 baseline volumes. These volumes were input to the intersection operations analyses addressed later in this TIA, and they form the basis of all the future year scenarios as well. The 2020 baseline volumes are presented in Figure 4.

Findings: Because of the ongoing COVID-19 pandemic temporarily closing schools and multiple businesses, present intersection traffic volumes were estimated based on historical data rather than by counting existing volumes.

Historical data available at study area intersections indicate a growth rate of 1.0% (annually compounded), so for locations where historical data were available, past volumes were grown by 1.0% (annually compounded) to estimate March 2020 volumes.

Comparisons between current counts and present projections (based on 1.0% growth) at select study area intersections indicate the COVID-19 pandemic has depressed volumes by approximately 30% across the study area. So, for locations where historical data were unavailable, current counts were increased by 30% to estimate March 2020 volumes.

To apply a level of uniformity to the study, intersection approach volumes were balanced at groups of intersections close together, using the estimated March 2020 volumes at the intersection with higher volumes as the fixed references. These balanced volumes and the unadjusted volumes at isolated intersections were used as the 2020 baseline volumes for this study. The pairs of close intersections balanced were:

Present-day traffic volumes at Myra Road / Heritage Road / Pine Street were taken from a study done by PBS for Myra-Offner Master Plan (PBS Project 67619.000), dated May 8, 2020. A 2.5% annual growth rate was applied to historical data to estimate the present volumes at this intersection as opposed to a 1.0% annual growth rate that was found in the eastern region of Walla Walla.

1.4.2 Background Growth

Background growth is a generic increase in traffic volumes that either is not attributable to specific developments or is attributable to influences outside the study area. As noted above, average trends among recent traffic counts suggest a background growth rate of approximately 1.0% per year. Thus, a background growth rate of 1.0% per year (annually compounded) was applied to all 2020 baseline peak hour movement volumes between public roadways at the studied intersections.

1.4.3 In-Process Projects

In-process trips from approved projects were requested from the City, and one in-process project was identified for inclusion in this TIA.

- Lower Waitsburg Road (LWR) Industrial Park (also known as Bouchon Industrial Park) Phase II: 223,200 square feet of warehouse and 38,300 square feet of auto sales (based on a TIA dated July 2, 2015, and an update memo dated July 6, 2015, both by HDJ Design Group, a PBS predecessor firm)—100% unoccupied

The in-process project is understood to add some trips to the study area intersections and is assumed to be complete before 2023. The driveways of the in-process project are assumed to align with the Harvey Ranch Estates proposed accesses. The in-process volumes for the studied intersections are summarized on Figure 5. Copies of the in-process project trip information are provided in Appendix B.

City staff noted another project, The Range Amphitheatre, will conduct outdoor concerts and events on the driving range at the Veterans Memorial Golf Course, which is located just west of the Harvey Ranch Estates property. Upon evaluation of the facility's intent and programmed events, PBS determined that The Range Amphitheatre will not significantly impact peak hour traffic volumes at the studied intersections. Those events may, however, generate off-peak pedestrian or bicycling trips between the subdivision and the amphitheater.

1.4.4 Future Volumes

The baseline volumes for 2023 intersection operations analyses, termed the 2023 Without Project volumes, represent the sum of 2020 baseline traffic and 3 years of background growth. Figure 6 presents the 2023 Without Project volumes for the weekday AM and PM peak hours.

The baseline volumes for 2025 intersection operations analyses, termed the 2025 Without Project volumes, represent the sum of 2020 baseline traffic and 5 years of background growth. Figure 9 presents the 2025 Without Project volumes for the weekday AM and PM peak hours.

The baseline volumes for 2027 intersection operations analysis, termed the 2027 Without Project volumes, represent the sum of 2020 baseline traffic and 7 years of background growth. Figure 12 presents the 2027 Without Project volumes for the weekday AM and PM peak hours.

The baseline volumes for 2037 intersection operations analysis, termed the 2037 Without Project volumes, represent the sum of 2020 baseline traffic and 17 years of background growth. Figure 15 presents the 2037 Without Project volumes for the weekday AM and PM peak hours.

1.4.5 Traffic Volumes Findings

Traffic volumes in the study area will continue to increase without or with the project. Trips for one in-process project, the LWR Industrial Park (or Bouchon Industrial Park), Phase II, were included in this analysis.

Generic background growth (at 1% for 3 years) was assumed to add approximately 3.0% to the 2020 baseline volumes to estimate 2023 Without Project volumes.

Generic background growth (at 1% for 5 years) was assumed to add approximately 5.1% to the 2020 baseline volumes to estimate 2025 Without Project volumes.

Generic background growth (at 1% for 7 years) was assumed to add approximately 7.2% to the 2020 baseline volumes to estimate 2027 Without Project volumes.

Generic background growth (at 1% for 17 years) was assumed to add approximately 18.4% to the 2020 baseline volumes to estimate 2037 Without Project volumes.

2 PROPOSED CONDITIONS

The proposed development will add traffic to the roadway system. Where the project is located, the size of the project, and when it will be completed are all important elements that needed to be considered to determine the impacts of this development on safety and capacity. It was also important to examine how the project will operate with the existing transportation system, estimate how much new traffic it will generate, and predict where traffic generated by the site will be distributed. Furthermore, this section addresses any funded infrastructure changes planned by other agencies or developers. All these elements were important in assessing the traffic impacts of this project.

2.1 Project Description

The project will consist of developing 61± acres of vacant land into 250 (nominal) single-family home lots. The final number of lots has yet to be determined by the civil engineer; during the preparation of this TIA, the lot count has ranged from 247 to 253. The site is located on the northwest corner of the Lower Waitsburg Road / Clinton Street / US Highway 12 intersection. The single-family lots will be developed over several phases, and they are expected to be fully occupied by the year 2027. Table 4 provides the anticipated schedule on which the proposed development is to be constructed.

Table 4. Anticipated Stages for Proposed Development

Use	Total Size of Use	Stage 1	Stage 2	Stage 3
		2020 to 2023	2023 to 2025	2025 to 2027
Single-Family Residential	250 dwelling units	84 units	83 units	83 units

2.2 Access and Circulation

The project proposes two accesses on Lower Waitsburg Road, one at the northern end of the site and the other on the southern end. The project proposes to use these two access points for vehicular and nonmotorized travel into and out of the site.

Within the development, an internal local public roadway network will be developed to serve the proposed development, and pedestrian connections will be provided between the public rights-of-way and the individual lots as they develop.

During the initial study scoping meeting, Washington State Department of Transportation (WSDOT) staff confirmed no access will be allowed to US Highway 12.

Findings: The project will use the proposed northern and southern accesses along Lower Waitsburg Road as the two access points into and out of the site. An internal local roadway network will be developed to serve the proposed residential lots. The site roadway will include sidewalks for pedestrian circulation and access to each lot. No access will be permitted to US Highway 12.

2.3 Trip Generation and Distribution

The following sections rely on data provided in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual* (see References section). Detailed trip generation calculations are provided in Appendix C.

2.3.1 Proposed Trip Generation

The numbers of new trips from the proposed Harvey Ranch Estates development were estimated using the ITE *Trip Generation Manual* (see References). The ITE trip generation regression equations for Single-Family Detached Housing (ITE Land Use Code 210) were applied, following ITE *Handbook* (see References) guidelines,

and using the number of dwellings as the independent variable. See Figure 2 for the preliminary site plan and lot layout. The new weekday trips generated by the project are shown in Table 5. Trip generation calculations are included in Appendix C.

Table 5. Trip Generation Estimates for Harvey Ranch Estates

Stage	Stage 1		Stages 1+2		Stages 1+2+3	
Land Use (ITE Code)	Single-Family Detached Housing (210)					
Independent Variable	Dwellings					
Size	84		167		250	
Average Weekday Trips (ADT)	886		1,762		2,638	
Peak Hour Trips	AM	PM	AM	PM	AM	PM
In	16	54	32	108	48	162
Out	48	32	96	63	144	94
Total Trips	64	86	128	171	192	256

As shown in Table 5, at Stage 1, the proposed subdivision is estimated to generate 886 weekday trips, including 64 trips during the AM peak hour and 86 trips during the PM peak hour. At buildout of Stages 1 and 2, the subdivision is estimated to generate 1,762 weekday trips, including 128 trips during the AM peak hour and 171 trips during the PM peak hour. At full buildout, the subdivision is estimated to generate 2,638 weekday trips, including 192 trips during the AM peak hour and 256 trips during the PM peak hour.

Findings: The proposed Harvey Ranch Estates project is estimated to generate 2,638 weekday trips, including 192 trips during the AM peak hour, 256 trips during the PM peak hour based on a nominal 250-lot subdivision.

2.3.2 Proposed Trip Distribution

The proposed distribution of new (primary) trips is based on a review of the land uses within the study area, on the distribution of existing traffic patterns, and on engineering judgment. The proposed distribution pattern is as follows:

- 15% to and from west on US Highway 12, west of Myra Road
- 25% to and from south on Myra Road, south of Heritage Road and Pine Street
- 30% to and from south on 2nd Avenue, south of US Highway 12
- 10% to and from north on 4th Avenue, north of US Highway 12
- 10% to and from east on Melrose Street, east of Wellington Avenue
- 5% to and from south on Wellington Avenue, south of Melrose Street
- 5% to and from east on US Highway 12, east of Wilbur Avenue

The distribution pattern above represents an external distribution of Harvey Ranch Estates trips entering and exiting the study area. The distribution and assignment of new trips to and from the project are shown on Figures 7, 10, and 13.

2.3.3 Future Volumes with Project

Figure 8 presents the 2023 With Project (Stage 1) volumes, or the sum of Without Project volumes and the net site-generated trips, for the weekday AM and PM peak hours.

Figure 11 presents the 2025 With Project (Stage 1 and 2) volumes, or the sum of Without Project volumes and the net site-generated trips, for the weekday AM and PM peak hours.

Figure 14 presents the 2027 With Project (Stage 1, 2 and 3) volumes, or the sum of Without Project volumes and the net site-generated trips, for the weekday AM and PM peak hours.

Figure 16 presents the 2037 With Project (Stage 1, 2 and 3) volumes, or the sum of Without Project volumes and the net site-generated trips, for the weekday AM and PM peak hours.

3 INTERSECTION OPERATIONS ANALYSES

3.1 Operations Description

Traffic operations are assessed in terms of level of service (LOS), a concept developed by transportation engineers to qualify the level of operation of intersections and roadways (*Highway Capacity Manual*, or HCM, see References). LOS measures are classified in grades "A" through "F," indicating a range of operation, with LOS "A" signifying the best level of operation and LOS "F" representing the worst level.

LOS at unsignalized intersections is quantified in terms of average delay per vehicle. LOS "A" reflects full freedom of operation for a driver, while LOS "F" represents operational failure. The criteria are based on the theory of gap acceptance for stop-controlled approaches.

The volume-to-capacity (v/c) ratio quantifies the portion of the theoretical capacity consumed by traffic demand volume. A v/c ratio of zero (0.00) reflects none of the capacity is consumed and all the capacity is fully available. A v/c ratio of one (1.00) reflects all the capacity is consumed and represents operational failure. The v/c ratio is typically calculated for each intersection approach lane or lane group.

3.2 Operation Standards

Based on the City's *Comprehensive Plan* (see References), the LOS standards operating conditions for both signalized and unsignalized intersections in urban areas may not exceed LOS "D" or a v/c ratio of 0.90 for intersections on arterials or collectors. The arterials and collectors include Myra Road and Isaacs Avenue between Wilbur Avenue and Airport Way. For all other intersections, the intersections may not exceed LOS "E" or a v/c ratio of 0.95.

In addition, based on the City's *Transportation Impact Analysis Guidelines* (see References),

- No existing intersection or critical movement should worsen by more than two levels of service.
- Delay for the critical movement at an unsignalized intersection must not increase by more than 10 seconds with the proposed additional traffic.
- Traffic mitigation shall be recommended to offset other safety issues, capacity issues, and/or specific neighborhood traffic impacts caused by an increase of 25% or more in average daily traffic (ADT) on adjacent local or collector streets due to the proposed development.

The above operation standards were applied to the intersections under City of Walla Walla jurisdiction:

- Lower Waitsburg Road / Northern Access
- Lower Waitsburg Road / Southern Access
- Lower Waitsburg Road / Middle Waitsburg Road
- Blue Mountain Drive / Middle Waitsburg Road
- Blue Mountain Drive / Rainier Street
- Wellington Avenue / Melrose Street
- Wellington Avenue / Isaacs Avenue
- Wilbur Avenue / Melrose Street

WSDOT requires a LOS "D" or better for state highways in urban areas of Walla Walla County (see References), including US Highway 12 and Pine Street, which is the State Route 125 Spur. In addition, the WSDOT guidelines for roundabout analysis recommend the maximum v/c ratio for any approach lane be within a range of 0.85 to 0.90. These operation standards were applied to the following intersections:

- Lower Waitsburg Road / Clinton Street / US Highway 12
- Wilbur Avenue / US Highway 12
- Myra Road / Heritage Road / Pine Street

3.3 Analysis Methodology

Traffic impacts were estimated to determine the extent of change in traffic conditions caused by the development of this project. To make this determination, the following assumptions were employed:

- The individual peak hour volumes were analyzed for 2020, 2023, 2025, 2027, and 2037.
- The peak hour factor (PHF) for the overall intersection, as calculated from the count data, was applied for 2020 baseline analysis scenario. For 2023, 2025, 2027, and 2037 conditions, the PHF recommended by the City's *TIA Guidelines* was applied unless the count data PHF was higher.
- A minimum heavy vehicle percentage (HV%) of 2% was assumed for each movement for all analysis scenarios (2020, 2023, 2025, 2027, and 2037). The HV% calculated from the count data was applied if it was greater than 2%.
- Baseline traffic volumes on the surrounding street system were determined prior to adding the traffic impacts of the proposed project. This was done to establish a baseline for measuring the project impacts at the time of its development. Baseline traffic volume estimates were prepared for year of buildout of each stage of construction, 2023 Without Project, 2025 Without Project, 2027 Without Project and for the planning horizon year, 2037 Without Project volumes.
- As noted previously, trip generation estimates for the project were prepared for the weekday AM and PM peak hours on the surrounding street system.
- Cumulative traffic impacts of the proposed project were determined by superimposing the project-generated traffic onto the background weekday AM and PM peak traffic at all studied intersections. These are termed the 2023 With Project (Stage 1), 2025 With Project (Stages 1 and 2), 2027 With Project (Stages 1, 2, and 3), and 2037 With Project conditions (Stages 1, 2, and 3).
- The LOS for all signalized and stop-controlled intersections was calculated with Trafficware's Synchro software, Version 10, based on HCM 6th Edition (see References) methodologies.
- The LOS for the roundabout intersection was calculated with Akcelik & Associates' SIDRA Intersection software, Version 9, based on WSDOT-recommended settings (see References).
- Intersection results are reported differently depending on the control type.
 - Two-way stop-controlled (TWSC) intersection results report the critical movement LOS, delay, and v/c ratio.
 - All-way stop-controlled, roundabout, and signalized intersection results report the overall intersection LOS and delay as well as the critical lane v/c ratio.

3.4 Level of Service Analyses

LOS calculation reports for the study area intersections are provided in Appendix D. The key analysis findings are listed in the following tables, and a summary of LOS findings are discussed section 3.5.

3.4.1 2020 Existing Conditions

Table 6 describes the existing LOS for each intersection within the study area for the 2020 existing volumes during the AM and PM peak hours.

Table 6. Estimated 2020 Level of Service for Existing Conditions for Study Area Intersections

Int. #	Intersection	Jurisdiction (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Lower Waitsburg Road / Northern Subdivision Access	City (LOS D, v/c ≤ 0.90)	Intersection does not exist.					
2	Lower Waitsburg Road / Southern Subdivision Access	City (LOS D, v/c ≤ 0.90)	Intersection does not exist.					
3	Lower Waitsburg Road / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				A	9.4	0.073 (WB)
4	Lower Waitsburg Road / Clinton Street / US Highway 12	WSDOT (LOS D)				B	11.2	0.125 (SB RT)
5	Blue Mountain Drive / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				A	9.1	0.047 (NB)
6	Blue Mountain Drive / Rainier Street	City (LOS D, v/c ≤ 0.90)				B	10.2	0.015 (NB)
7	Wellington Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	15.4	0.301 (SB)
8	Wellington Avenue / Isaacs Avenue	City (LOS D, v/c ≤ 0.90)				C	18.0	0.109 (SB LT)
9	Wilbur Avenue / US Highway 12	WSDOT (LOS D)				D	33.9	0.713 (NB LT)
10	Wilbur Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				B	12.9	0.505 (NB)
11	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)				A	4.2	0.222 (WB)

As shown in Table 6, all studied intersections currently operate at an acceptable LOS during the weekday AM and PM peak hours.

3.4.2 2023 Future Conditions Without Project

Table 7 describes the LOS for each intersection within the study area for 2023 Without Project during the AM and PM peak hours.

Table 7. Estimated 2023 Level of Service without Project for Study Area Intersections

Int. #	Intersection	Jurisdiction (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Lower Waitsburg Road / Northern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	8.9	0.007 (WB)	A	9.2	0.029 (WB)
2	Lower Waitsburg Road / Southern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	9.3	0.026 (WB)	A	9.8	0.099 (WB)
3	Lower Waitsburg Road / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				B	10.5	0.095 (WB)
4	Lower Waitsburg Road / Clinton Street / US Highway 12	WSDOT (LOS D)				B	12.1	0.256 (SB RT)
5	Blue Mountain Drive / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				A	9.3	0.062 (NB)
6	Blue Mountain Drive / Rainier Street	City (LOS D, v/c ≤ 0.90)				B	10.6	0.016 (NB)
7	Wellington Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	17.2	0.370 (SB)
8	Wellington Avenue / Isaacs Avenue	City (LOS D, v/c ≤ 0.90)				C	18.9	0.118 (SB LT)
9	Wilbur Avenue / US Highway 12	WSDOT (LOS D)				E	37.2	0.744 (NB LT)
10	Wilbur Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				B	13.7	0.538 (NB)
11	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)				A	4.1	0.202 (WB)

As shown in Table 7, all studied intersections except one will operate at an acceptable LOS in the 2023 year of opening Without Project conditions during the weekday AM and PM peak hours. The exception is the Wilbur Avenue / US Highway 12 intersection, whose northbound left-turn lane will operate at LOS E in the PM peak hour.

3.4.3 2023 Future Conditions With Project (Stage 1)

Table 8 describes the LOS for each intersection within the study area for 2023 With Project (Stage 1) during the AM and PM peak hours.

Table 8. Estimated 2023 Level of Service With Project (Stage 1) for Study Area Intersections

Int. #	Intersection	Jurisdiction (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Lower Waitsburg Road / Northern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	9.0	0.008 (WB)	A	9.5	0.031 (WB)
2	Lower Waitsburg Road / Southern Subdivision Access	City (LOS D, v/c ≤ 0.90)	B	10.2	0.032 (WB)	B	11.6	0.131 (WB)
3	Lower Waitsburg Road / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				B	11.2	0.111 (WB)
4	Lower Waitsburg Road / Clinton Street / US Highway 12	WSDOT (LOS D)				B	12.5	0.295 (SB RT)
5	Blue Mountain Drive / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				A	9.3	0.066 (NB)
6	Blue Mountain Drive / Rainier Street	City (LOS D, v/c ≤ 0.90)				B	10.6	0.016 (NB)
7	Wellington Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	17.7	0.388 (SB)
8	Wellington Avenue / Isaacs Avenue	City (LOS D, v/c ≤ 0.90)				C	19.1	0.120 (SB LT)
9	Wilbur Avenue / US Highway 12	WSDOT (LOS D)				E	38.8	0.761 (NB LT)
10	Wilbur Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				B	13.9	0.546 (NB)
11	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)				A	4.1	0.204 (WB)

As shown in Table 8, all studied intersections except one will operate at an acceptable LOS in the 2023 year of opening With Project conditions during the weekday AM and PM peak hours. The exception is the Wilbur Avenue / US Highway 12 intersection, whose northbound left-turn lane will operate at LOS E in the PM peak hour.

3.4.4 2025 Future Conditions Without Project

Table 9 describes the LOS for each intersection within the study area for 2025 Without Project during the AM and PM peak hours.

Table 9. Estimated 2025 Level of Service without Project for Study Area Intersections

Int. #	Intersection	Jurisdiction (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Lower Waitsburg Road / Northern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	8.9	0.007 (WB)	A	9.2	0.029 (WB)
2	Lower Waitsburg Road / Southern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	9.3	0.026 (WB)	A	9.8	0.099 (WB)
3	Lower Waitsburg Road / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				B	10.5	0.097 (WB)
4	Lower Waitsburg Road / Clinton Street / US Highway 12	WSDOT (LOS D)				B	12.2	0.261 (SB RT)
5	Blue Mountain Drive / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				A	9.3	0.063 (NB)
6	Blue Mountain Drive / Rainier Street	City (LOS D, v/c ≤ 0.90)				B	10.6	0.016 (NB)
7	Wellington Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	17.6	0.382 (SB)
8	Wellington Avenue / Isaacs Avenue	City (LOS D, v/c ≤ 0.90)				C	19.4	0.125 (SB LT)
9	Wilbur Avenue / US Highway 12	WSDOT (LOS D)				E	40.5	0.773 (NB LT)
10	Wilbur Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				B	14.2	0.555 (NB)
11	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)				A	4.2	0.207 (WB)

As shown in Table 9, all studied intersections except one will operate at an acceptable LOS in the 2025 year of opening Without Project conditions during the weekday AM and PM peak hours. The exception is the Wilbur Avenue / US Highway 12 intersection, whose northbound left-turn lane will operate at LOS E in the PM peak hour.

3.4.5 2025 Future Conditions With Project (Stages 1 and 2)

Table 10 describes the LOS for each intersection within the study area for 2025 With Project (Stages 1 and 2) during the AM and PM peak hours.

Table 10. Estimated 2025 Level of Service With Project (Stages 1 and 2) for Study Area Intersections

Int. #	Intersection	Jurisdiction (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Lower Waitsburg Road / Northern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	9.2	0.008 (WB)	A	9.6	0.033 (WB)
2	Lower Waitsburg Road / Southern Subdivision Access	City (LOS D, v/c ≤ 0.90)	B	11	0.037 (WB)	B	13.9	0.169 (WB)
3	Lower Waitsburg Road / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				B	12.1	0.131 (WB)
4	Lower Waitsburg Road / Clinton Street / US Highway 12	WSDOT (LOS D)				B	13.1	0.338 (SB RT)
5	Blue Mountain Drive / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				A	9.4	0.070 (NB)
6	Blue Mountain Drive / Rainier Street	City (LOS D, v/c ≤ 0.90)				B	10.8	0.016 (NB)
7	Wellington Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	18.7	0.420 (SB)
8	Wellington Avenue / Isaacs Avenue	City (LOS D, v/c ≤ 0.90)				C	19.8	0.129 (SB LT)
9	Wilbur Avenue / US Highway 12	WSDOT (LOS D)				E	44.3	0.806 (NB LT)
10	Wilbur Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				B	14.8	0.576 (NB)
11	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)				A	4.1	0.209 (WB)

As shown in Table 10, all studied intersections except one will operate at an acceptable LOS in the 2025 year of opening With Project conditions during the weekday AM and PM peak hours. The exception is the Wilbur Avenue / US Highway 12 intersection, whose northbound left-turn lane will operate at LOS E in the PM peak hour.

3.4.6 2027 Future Conditions Without Project

Table 11 describes the LOS for each intersection within the study area for 2027 Without Project during the AM and PM peak hours.

Table 11. Estimated 2027 Level of Service without Project for Study Area Intersections

Int. #	Intersection	Jurisdiction (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Lower Waitsburg Road / Northern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	8.9	0.007 (WB)	A	9.2	0.030 (WB)
2	Lower Waitsburg Road / Southern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	9.3	0.027 (WB)	A	9.8	0.099 (WB)
3	Lower Waitsburg Road / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				B	10.5	0.100 (WB)
4	Lower Waitsburg Road / Clinton Street / US Highway 12	WSDOT (LOS D)				B	12.3	0.266 (SB RT)
5	Blue Mountain Drive / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				A	9.3	0.064 (NB)
6	Blue Mountain Drive / Rainier Street	City (LOS D, v/c ≤ 0.90)				B	10.6	0.016 (NB)
7	Wellington Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	18.1	0.395 (SB)
8	Wellington Avenue / Isaacs Avenue	City (LOS D, v/c ≤ 0.90)				C	19.8	0.129 (SB LT)
9	Wilbur Avenue / US Highway 12	WSDOT (LOS D)				E	44.7	0.804 (NB LT)
10	Wilbur Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				B	14.8	0.575 (NB)
11	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)				A	4.2	0.212 (WB)

As shown in Table 11, all studied intersections except one will operate at an acceptable LOS in the 2027 year of opening Without Project conditions during the weekday AM and PM peak hours. The exception is the Wilbur Avenue / US Highway 12 intersection, whose northbound left-turn lane will operate at LOS E in the PM peak hour.

3.4.7 2027 Future Conditions With Project (Stages 1, 2, and 3)

Table 12 describes the LOS for each intersection within the study area for 2027 With Project (Stages 1, 2, and 3) during the AM and PM peak hours.

Table 12. Estimated 2027 Level of Service With Project (Stages 1, 2, and 3) for Study Area Intersections

Int. #	Intersection	Jurisdiction (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Lower Waitsburg Road / Northern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	9.3	0.008 (WB)	A	9.9	0.034 (WB)
2	Lower Waitsburg Road / Southern Subdivision Access	City (LOS D, v/c ≤ 0.90)	B	12	0.042 (WB)	C	17.3	0.219 (WB)
3	Lower Waitsburg Road / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				B	13.2	0.156 (WB)
4	Lower Waitsburg Road / Clinton Street / US Highway 12	WSDOT (LOS D)				B	13.7	0.381 (SB RT)
5	Blue Mountain Drive / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				A	9.5	0.076 (NB)
6	Blue Mountain Drive / Rainier Street	City (LOS D, v/c ≤ 0.90)				B	10.9	0.017 (NB)
7	Wellington Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	19.9	0.454 (SB)
8	Wellington Avenue / Isaacs Avenue	City (LOS D, v/c ≤ 0.90)				C	20.4	0.133 (SB LT)
9	Wilbur Avenue / US Highway 12	WSDOT (LOS D)				F	51.9	0.855 (NB LT)
10	Wilbur Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	15.5	0.599 (NB)
11	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)				A	4.1	0.215 (WB)

As shown in Table 12, all studied intersections except one will operate at an acceptable LOS in the 2027 year of opening With Project conditions during the weekday AM and PM peak hours. The exception is the Wilbur Avenue / US Highway 12 intersection, whose northbound left-turn lane will operate at LOS F in the PM peak hour.

3.4.8 2037 Future Conditions Without Project

Table 13 describes the LOS for each intersection within the study area for 2037 Without Project during the AM and PM peak hours.

Table 13. Estimated 2037 Level of Service without Project for Study Area Intersections

Int. #	Intersection	Jurisdiction (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/veh)	v/c (critical lane)	LOS	Delay (sec/veh)	v/c (critical lane)
1	Lower Waitsburg Road / Northern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	9.0	0.007 (WB)	A	9.3	0.030 (WB)
2	Lower Waitsburg Road / Southern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	9.4	0.027 (WB)	A	9.9	0.101 (WB)
3	Lower Waitsburg Road / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				B	10.7	0.111 (WB)
4	Lower Waitsburg Road / Clinton Street / US Highway 12	WSDOT (LOS D)				B	13	0.293 (SB RT)
5	Blue Mountain Drive / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				A	9.4	0.070 (NB)
6	Blue Mountain Drive / Rainier Street	City (LOS D, v/c ≤ 0.90)				B	10.8	0.020 (NB)
7	Wellington Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	21.5	0.476 (SB)
8	Wellington Avenue / Isaacs Avenue	City (LOS D, v/c ≤ 0.90)				C	22.9	0.167 (SB LT)
9	Wilbur Avenue / US Highway 12	WSDOT (LOS D)				F	85.5	0.998 (NB LT)
10	Wilbur Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	18.2	0.676 (NB)
11	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)				A	4.2	0.225 (WB)

As shown in Table 13, all studied intersections except one will operate at an acceptable LOS in the 2037 horizon year of opening Without Project conditions during the weekday AM and PM peak hours. The exception is the Wilbur Avenue / US Highway 12 intersection, whose northbound left-turn lane will operate at LOS F in the PM peak hour.

3.4.9 2037 Future Conditions With Project (Stages 1, 2, and 3)

Table 14 describes the LOS for each intersection within the study area for 2037 With Project (Stages 1, 2, and 3) during the AM and PM peak hours.

Table 14. Estimated 2037 Level of Service With Project (Stages 1, 2, and 3) for Study Area Intersections

Int. #	Intersection	Jurisdiction (Operating Standard)	AM Peak Hour			PM Peak Hour		
			LOS	Delay (sec/ veh)	v/c (critical lane)	LOS	Delay (sec/ veh)	v/c (critical lane)
1	Lower Waitsburg Road / Northern Subdivision Access	City (LOS D, v/c ≤ 0.90)	A	9.3	0.008 (WB)	A	9.9	0.035 (WB)
2	Lower Waitsburg Road / Southern Subdivision Access	City (LOS D, v/c ≤ 0.90)	B	12.1	0.043 (WB)	C	17.6	0.223 (WB)
3	Lower Waitsburg Road / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				B	13.5	0.173 (WB)
4	Lower Waitsburg Road / Clinton Street / US Highway 12	WSDOT (LOS D)				B	14.6	0.414 (SB RT)
5	Blue Mountain Drive / Middle Waitsburg Road	City (LOS D, v/c ≤ 0.90)				A	9.5	0.082 (NB)
6	Blue Mountain Drive / Rainier Street	City (LOS D, v/c ≤ 0.90)				B	11.1	0.021 (NB)
7	Wellington Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	24.4	0.543 (SB)
8	Wellington Avenue / Isaacs Avenue	City (LOS D, v/c ≤ 0.90)				C	23.7	0.173 (SB LT)
9	Wilbur Avenue / US Highway 12	WSDOT (LOS D)				F	101.4	1.054 (NB LT)
10	Wilbur Avenue / Melrose Street	City (LOS D, v/c ≤ 0.90)				C	19.4	0.705 (NB)
11	Myra Road / Heritage Road / Pine Street	WSDOT (v/c ≤ 0.85-0.90)				A	4.2	0.229 (WB)

As shown in Table 14, all studied intersections except one will operate at an acceptable LOS in the 2037 horizon year of opening With Project conditions during the weekday AM and PM peak hours. The exception is the Wilbur Avenue / US Highway 12 intersection, whose northbound left-turn lane will operate at LOS F in the PM peak hour.

3.5 Level of Service Analysis Discussion

Findings: With one exception, all studied intersections are projected to operate at an acceptable LOS in all scenarios both with and without the project. The exception is the Wilbur Avenue / US Highway 12 intersection, which is estimated to operate at LOS E, below City and WSDOT LOS D standards for the northbound left-turn lane in the 2023 Without Project scenario during the PM peak hour. The intersection continues to operate below City and WSDOT standards without and with project trips through the 2027 scenarios.

The City's long-range transportation plan proposes a grade-separated interchange to improve the north-south connections, including multimodal connections, at the Wilbur Avenue / US Highway 12 intersection (see project RE-88, Exhibit 49, in the *2040 Comprehensive Plan Update*, pg. TP-25). The grade-separated interchange would address the future LOS deficiency at the Wilbur Avenue / US Highway 12 intersection.

However, in discussions with City staff related to this intersection, it was noted that lower cost alternatives are being considered:

- Lane modifications
- A roundabout

Both alternatives are too conceptual to recommend a partial contribution by the Harvey Ranch Estates project to address the increased delay associated with its trips, but the City suggested mitigation at an alternative location to address impacts to the Wilbur Avenue / US Highway 12 intersection.

Recommendations: Make no mitigation contribution to the future Wilbur Avenue / US Highway 12 grade-separated interchange project, despite the LOS deficiency at this intersection. Instead, the City and applicant should negotiate mitigation at an alternative location to address impacts at the Wilbur Avenue / US Highway 12 intersection.

4 SAFETY ANALYSIS

4.1 Turning Movement Conflicts

As noted in the in-process projects section, this TIA assumes that the proposed accesses for the Harvey Ranch Estates project and the two driveways approved with the LWR Industrial Park project will align. For the benefit of safety, and to formalize the assumption, it is recommended to align the proposed accesses and the two driveways. This will improve drivers' views of approaching traffic and avoid overlapping vehicle paths.

Recommendation: Align the proposed Harvey Ranch Estates accesses on the west side of Lower Waitsburg Road and the two driveways approved with the LWR Industrial Park, Phase II, project on the east side of Lower Waitsburg Road.

4.2 Left-Turn Storage Analysis

The criteria for the analysis of left-turn lanes at uncontrolled intersection legs are based on the WSDOT *Design Manual*, Exhibit 1310-7a, Left-Turn Storage Guidelines: Two-Lane, Unsignalized. The exhibit provides guideline curves for posted speeds of 40, 50, and 60 miles per hours (mph).

Finding: The northern and southern subdivision accesses on Lower Waitsburg Road were analyzed and neither access met WSDOT left-turn lane guidelines.

4.3 Right-Turn Treatment Analysis

The criteria for the analysis of right-turn lanes at uncontrolled intersection legs are based on the WSDOT *Design Manual*, Right-Turn Lane Guidelines (Exhibit 1310-11), which note:

Right-turn movements influence intersection capacity even though there is not conflict between right-turning vehicles and opposing traffic. Right-turn lanes might be needed to maintain efficient intersection operation. Use the following to determine when to consider right-turn lanes at unsignalized intersections:

- *For two-lane roadways and for multilane roadways with a posted speed of 45 mph or above, when recommended by Exhibit 1310-11.*

Finding: The northern and southern subdivision accesses on Lower Waitsburg Road were analyzed and neither access met WSDOT right-turn lane guidelines.

4.4 Collision Analysis

Collision data from the study area were obtained from WSDOT for the five-year period spanning from January 2015 through December 2019. This analysis assumes that a collision rate less than the critical collision rate for the intersection is typically considered to be within acceptable parameters. A collision rate above the critical rate is worthy of further examination. The detailed collision data can be found in Appendix E. Table 15 presents the results of the collision analysis.

Table 15. Collision Analysis for Study Area Intersections (January 2015 through December 2019)

Intersection	Collision Type						Total Collisions	Critical Rate	Collision Rate
	Rear-end	Side-swipe	Angle	Object/Ped	Straight/Head on	Parked/Overturn			
Lower Waitsburg Road / Middle Waitsburg Road	-	-	-	3	-	-	3	1.15	0.91
Lower Waitsburg Road / Clinton Street / US Highway 12	-	-	6	1	1	-	8	0.84	0.33
Blue Mountain Drive / Middle Waitsburg Road	-	-	-	-	1	-	1	1.21	0.40
Blue Mountain Drive / Rainier Street	-	-	-	-	-	-	0	1.11	0
Wellington Avenue / Melrose Street	1	-	11	-	-	-	12	0.94	1.07
Wellington Avenue / Isaacs Avenue	1	1	1	2	1	-	6	0.87	0.34
Wilbur Avenue / US Highway 12	3	1	10	2	2	-	18	0.85	0.79
Wilbur Avenue / Melrose Street	1	1	6	3	-	1	12	0.88	0.71
Myra Road / Heritage Road / Pine Street	1	3	3	1	1	-	9	0.85	0.41

To calculate the collision rate, the PM peak hour total entering volumes from the existing turning movement counts were multiplied by 10 to provide an approximation of the average daily trips (ADT). Detailed calculations of critical rates and collision rates are provided in Appendix E.

As shown in Table 15, the calculated collision rate is higher than the critical rate for Wellington Avenue / Melrose Street; therefore, the collision records at this intersection were further examined for patterns and/or concerns. A pattern of right-angle collisions (11 out of 12 collisions) was found, though no collisions resulted in suspected serious injury or fatality. Five right-angle collisions occurred in a 12-month period between April 2018 and April 2019. The collision history meets the guidance criterion B for multi-way stop control based on Section 2B.07 of the *Manual of Uniform Traffic Control Devices* (MUTCD, see References). Intersection sight distance evaluation was checked digitally, and no sight distance restrictions were found. PBS recommends

that the City monitor this intersection and investigate installation of multi-way stop signs on Wellington Avenue / Melrose Street.

The Wilbur Avenue / US Highway 12 intersection has a pattern of angle collisions (10 out of 18 collisions), though no collisions resulted in suspected serious injury or fatality. The City's long-range transportation plan (within the *Comprehensive Plan*) proposes a grade-separated interchange to improve the north-south connections, including multimodal connections, at the Wilbur Avenue / US Highway 12 intersection. The grade-separated interchange would address future collisions at the Wilbur Avenue / US Highway 12 intersection.

The Wilbur Avenue / Melrose Street intersection has a pattern of angle collisions (6 out of 12 collisions), and one collision resulted in a suspected serious injury. Five collisions occurred in a 12-month period between November 2015 and November 2016. Intersection sight distance was checked digitally, and no sight distance restrictions were found. PBS recommends that the City monitor this intersection and, as a low-cost, short-term mitigation, install stop ahead signs on southbound Wilbur Avenue 100 feet north of Melrose Street.

Findings: The 2015–2019 collision history at the study intersections was reviewed; Wellington Avenue / Melrose Street has a collision rate that is higher than the critical rate.

A pattern of angle collisions was found at three intersections: Wellington Avenue / Melrose Street, Wilbur Avenue / US Highway 12, and Wilbur Avenue / Melrose Street.

One suspected serious injury incident was reported at Wilbur Avenue / Melrose Street.

Recommendations: PBS recommends that the City monitor collisions at the Wellington Avenue / Melrose Street intersection and investigate installation of multi-way stop signs.

PBS recommends that the City monitor collisions at the Wilbur Avenue / Melrose Street intersection and install stop ahead signs on southbound Wilbur Avenue 100 feet north of Melrose Street.

4.5 Transit, Pedestrian, and Bicycle Facilities

Most roadways within the study area have sidewalks or off-street paths for pedestrians. By contrast, on-street bike lanes currently do not exist along both sides of the several studied roadways, as noted in Table 2. An existing multi-use path parallels the north side of US Highway 12, connecting through most of the city from Myra Road at the west to Wellington Avenue / Rainier Street at the east. The south edge of Harvey Ranch Estates will be adjacent to this path.

Transit services are provided by Valley Transit, and the nearest bus stop is just west of the Wellington Avenue / Melrose Street intersection, along eastbound Melrose Street. The existing path along US Highway 12 and the existing sidewalks along Wellington Avenue provide a route of at least one mile between this nearest bus stop from the Harvey Ranch Estates site. While bicyclists may use this route to access transit, it is likely longer than Harvey Ranch residents would be willing to walk for transit access.

With the proposed development, sidewalks will be constructed along the internal streets, and new sidewalks will be installed along the Lower Waitsburg Road frontage of the Harvey Ranch Estates site. All these, as well as the driveways serving the individual residential lots, should be designed and constructed to comply with current Americans with Disabilities Act (ADA) guidelines.

It is recommended that at least one connection for bicyclists and pedestrians be made between the Harvey Ranch Estates site and the existing multi-use path along US Highway 12. Besides enhancing multimodal connectivity in the vicinity, a path connection will be an amenity to residents.

For the benefit of pedestrian safety along the multi-use path, it is recommended a pedestrian/bicycle crossing advance warning sign (MUTCD sign W11-15) be installed along southbound Lower Waitsburg Road approximately 250 feet north of the path crossing. Additionally, the crossing should be delineated with WSDOT-standard pavement markings at the crosswalk.

Findings: Sidewalks, bike lanes, and off-street paths are available along several roadways within the study area. The development will construct new pedestrian and/or bicycle facilities along internal streets and along the Lower Waitsburg Road frontage.

Recommendations: Assure all driveways, sidewalks, crosswalks, and curb ramps constructed with the Harvey Ranch Estates site developments comply with current ADA guidelines.

Provide at least one connection for bicyclists and pedestrians between the Harvey Ranch Estates site and the adjacent multi-use path parallel to US Highway 12.

Install a pedestrian/bicycle crossing advance warning sign (MUTCD sign W11-15) along southbound Lower Waitsburg Road approximately 250 feet north of the path crossing. Install WSDOT-standard crosswalk pavement markings at the crossing.

4.6 Sight Distance at Site Access Locations

The proposed Harvey Ranch Estates site accesses do not currently exist, so sight distances were evaluated digitally. The generally flat terrain and straight horizontal alignment of Lower Waitsburg Road along the property frontage indicated no concerns and suggested that adequate sight distances should be achievable through design and construction.

It is recommended to design the proposed access points and intersections in accordance with Chapter 9.5.3 of the American Association of State Highway and Transportation Officials (AASHTO) guidelines (see References). Install no objects within the sight distance triangles that would block exiting drivers' view of approaching traffic.

Findings: Digital review of the current conditions along Lower Waitsburg Road suggests that that adequate sight distances should be achievable through design and construction.

Recommendation: Design the proposed access points and intersections consistent with Chapter 9.5.3 of the AASHTO Geometric Design guide for intersection sight distance. Install no objects within the sight distance triangles that would block exiting drivers' view at the access points.

5 STUDY FINDINGS

The findings of this TIA are listed below.

5.1 Present Volumes Are Estimated

Because of the ongoing COVID-19 pandemic temporarily closing schools and multiple businesses, present intersection traffic volumes were estimated based on historical data rather than by counting existing volumes.

Historical data available at study area intersections indicate a growth rate of 1.0% (annually compounded), so for locations where historical data were available, past volumes were grown by 1.0% (annually compounded) to estimate March 2020 volumes.

Comparisons between current counts and present projections (based on 1.0% growth) at select study area intersections indicate the COVID-19 pandemic has depressed volumes by approximately 30% across the study area. So, for locations where historical data were unavailable, current counts were increased by 30% to estimate March 2020 volumes.

To apply a level of uniformity to the study, intersection approach volumes were balanced at groups of intersections close together, using the estimated March 2020 volumes at the intersection with higher volumes as the fixed references. These balanced volumes and the unadjusted volumes at isolated intersections were used as the 2020 baseline volumes for this study. The pairs of close intersections balanced were:

Present-day traffic volumes at Myra Road / Heritage Road / Pine Street were taken from a study done by PBS for Myra-Offner Master Plan (PBS Project 67619.000), dated May 8, 2020. A 2.5% annual growth rate was applied to historical data to estimate the present volumes at this intersection as opposed to a 1.0% annual growth rate that was found in the eastern region of Walla Walla.

5.2 Future Traffic Volumes Increase

Traffic volumes in the study area will continue to increase without or with the project. Trips for one in-process project, the LWR Industrial Park (or Bouchon Industrial Park), Phase II, were included in this analysis.

Generic background growth (at 1% for 3 years) was assumed to add approximately 3.0% to the 2020 baseline volumes to estimate 2023 Without Project volumes.

Generic background growth (at 1% for 5 years) was assumed to add approximately 5.1% to the 2020 baseline volumes to estimate 2025 Without Project volumes.

Generic background growth (at 1% for 7 years) was assumed to add approximately 7.2% to the 2020 baseline volumes to estimate 2027 Without Project volumes.

Generic background growth (at 1% for 17 years) was assumed to add approximately 18.4% to the 2020 baseline volumes to estimate 2037 Without Project volumes.

5.3 Access and Circulation

The project will use the proposed northern and southern accesses along Lower Waitsburg Road as the two access points into and out of the site. An internal local roadway network will be developed to serve the proposed residential lots. The site roadway will include sidewalks for pedestrian circulation and access to each lot. No access will be permitted to US Highway 12.

5.4 Trip Generation

The proposed Harvey Ranch Estates project is estimated to generate 2,638 weekday trips, including 192 trips during the AM peak hour, 256 trips during the PM peak hour based on a nominal 250-lot subdivision.

5.5 Intersection Operations

With one exception, all studied intersections are projected to operate at an acceptable LOS in all scenarios both with and without the project. The exception is the Wilbur Avenue / US Highway 12 intersection, which is estimated to operate at LOS E, below City and WSDOT LOS D standards for the northbound left-turn lane in the 2023 Without Project scenario during the PM peak hour. The intersection continues to operate below City and WSDOT standards without and with project trips through the 2027 scenarios.

The City's long-range transportation plan proposes a grade-separated interchange to improve the north-south connections, including multimodal connections, at the Wilbur Avenue / US Highway 12 intersection (see project RE-88, Exhibit 49, in the *2040 Comprehensive Plan Update*, pg. TP-25). The grade-separated interchange would address the future LOS deficiency at the Wilbur Avenue / US Highway 12 intersection.

However, in discussions with City staff related to this intersection, it was noted that lower cost alternatives are being considered:

- Lane modifications
- A roundabout

Both alternatives are too conceptual to recommend a partial contribution by the Harvey Ranch Estates project to address the increased delays associated with its trips, but the City suggested mitigation at an alternative location to address impacts to the Wilbur Avenue / US Highway 12 intersection.

5.6 Collision Analysis

The 2015–2019 collision history at the study intersections was reviewed; Wellington Avenue / Melrose Street has a collision rate that is higher than the critical rate.

A pattern of angle collisions was found at three intersections: Wellington Avenue / Melrose Street, Wilbur Avenue / US Highway 12, and Wilbur Avenue / Melrose Street.

One suspected serious injury incident was reported at Wilbur Avenue / Melrose Street.

5.7 Transit, Pedestrian, and Bicycle Facilities

Sidewalks, bike lanes, and off-street paths are available along several roadways within the study area. The development will construct new pedestrian and/or bicycle facilities along internal streets and along the Lower Waitsburg Road frontage.

5.8 Sight Distance at Site Accesses

Digital review of the current conditions along Lower Waitsburg Road suggests that that adequate sight distances should be achievable through design and construction.

6 RECOMMENDATIONS

The traffic impact analysis supports the following recommendations.

6.1 Traffic Impact Mitigation

Make no mitigation contribution to the future Wilbur Avenue / US Highway 12 grade-separated interchange project, despite the LOS deficiency at this intersection. Instead, the City and applicant should negotiate mitigation at an alternative to address impacts at the Wilbur Avenue / US Highway 12 intersection.

6.2 Access Alignment

Align the proposed Harvey Ranch Estates accesses on the west side of Lower Waitsburg Road and the two driveways approved with the LWR Industrial Park, Phase II, project on the east side of Lower Waitsburg Road.

6.3 Collision Mitigation

PBS recommends that the City monitor collisions at the Wellington Avenue / Melrose Street intersection and investigate installation of multi-way stop signs.

PBS recommends that the City monitor collisions at the Wilbur Avenue / Melrose Street intersection and install stop ahead signs on southbound Wilbur Avenue 100 feet north of Melrose Street.

6.4 Accessibility

Assure all driveways, sidewalks, crosswalks, and curb ramps constructed with the Harvey Ranch Estates site developments comply with current ADA guidelines.

6.5 Multimodal Connections

Provide at least one connection for bicyclists and pedestrians between the Harvey Ranch Estates site and the adjacent multi-use path parallel to US Highway 12.

6.6 Path Crossing Treatments

Install a pedestrian/bicycle crossing advance warning sign (MUTCD sign W11-15) along southbound Lower Waitsburg Road approximately 250 feet north of the path crossing. Install WSDOT-standard crosswalk pavement markings at the crossing.

6.7 Sight Lines at Accesses and Intersections

Design the proposed access points and intersections consistent with Chapter 9.5.3 of the AASHTO Geometric Design guide for intersection sight distance. Install no objects within the sight distance triangles that would block exiting drivers' view at the access points.

7 REFERENCES

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Figures

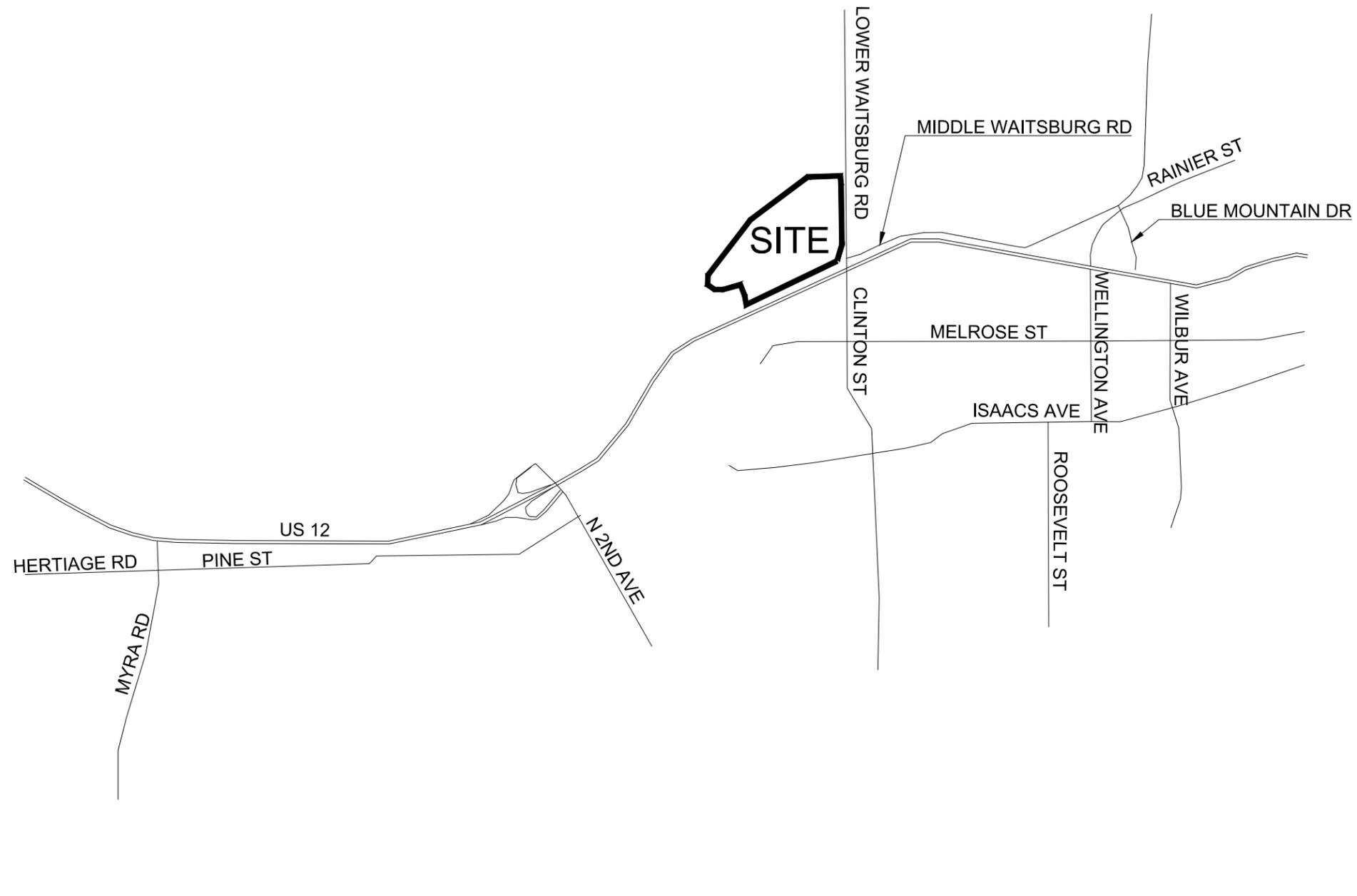


FIGURE 1

Vicinity Map Harvey Ranch Estates

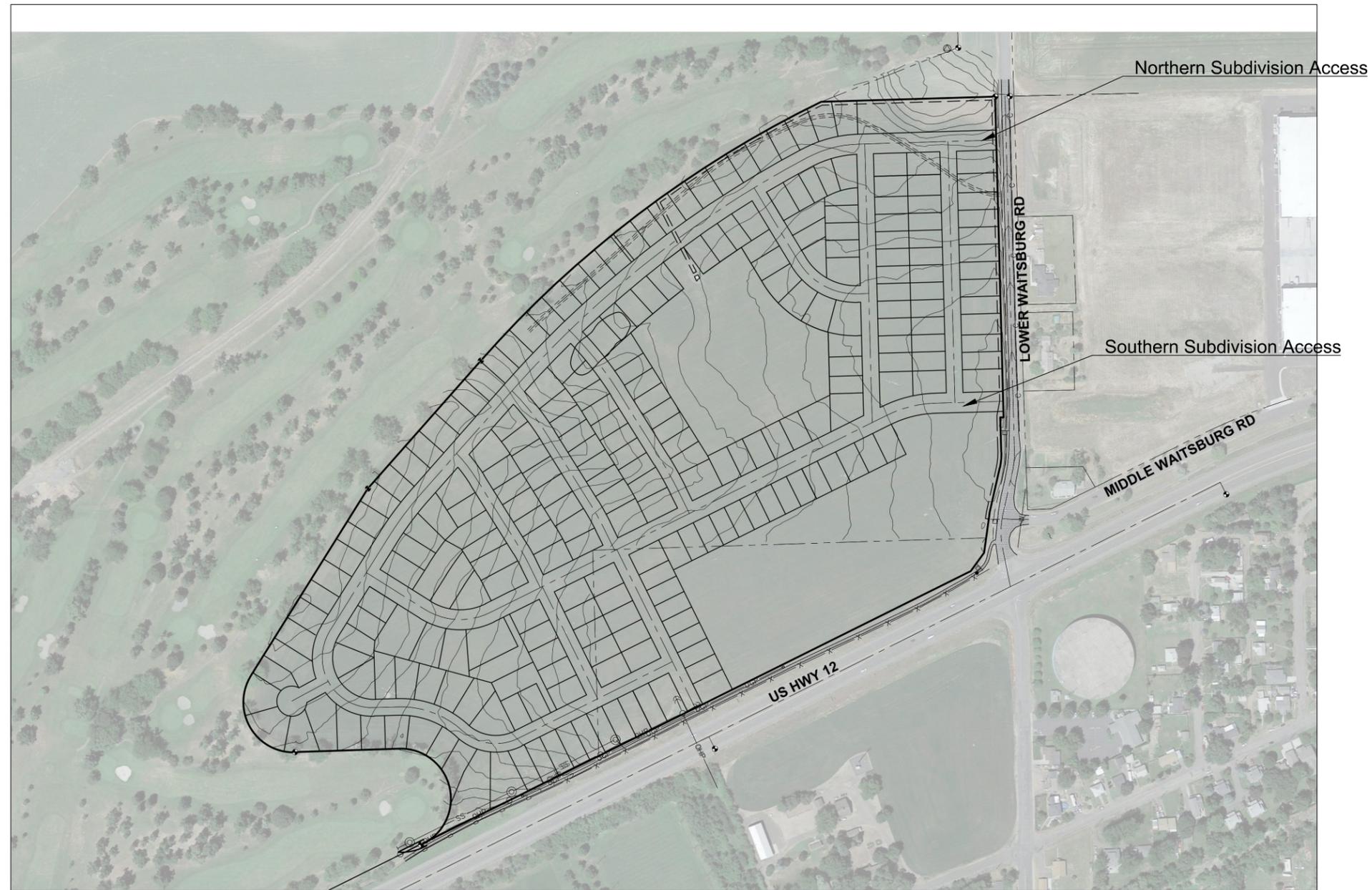
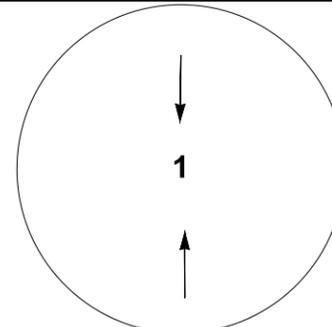
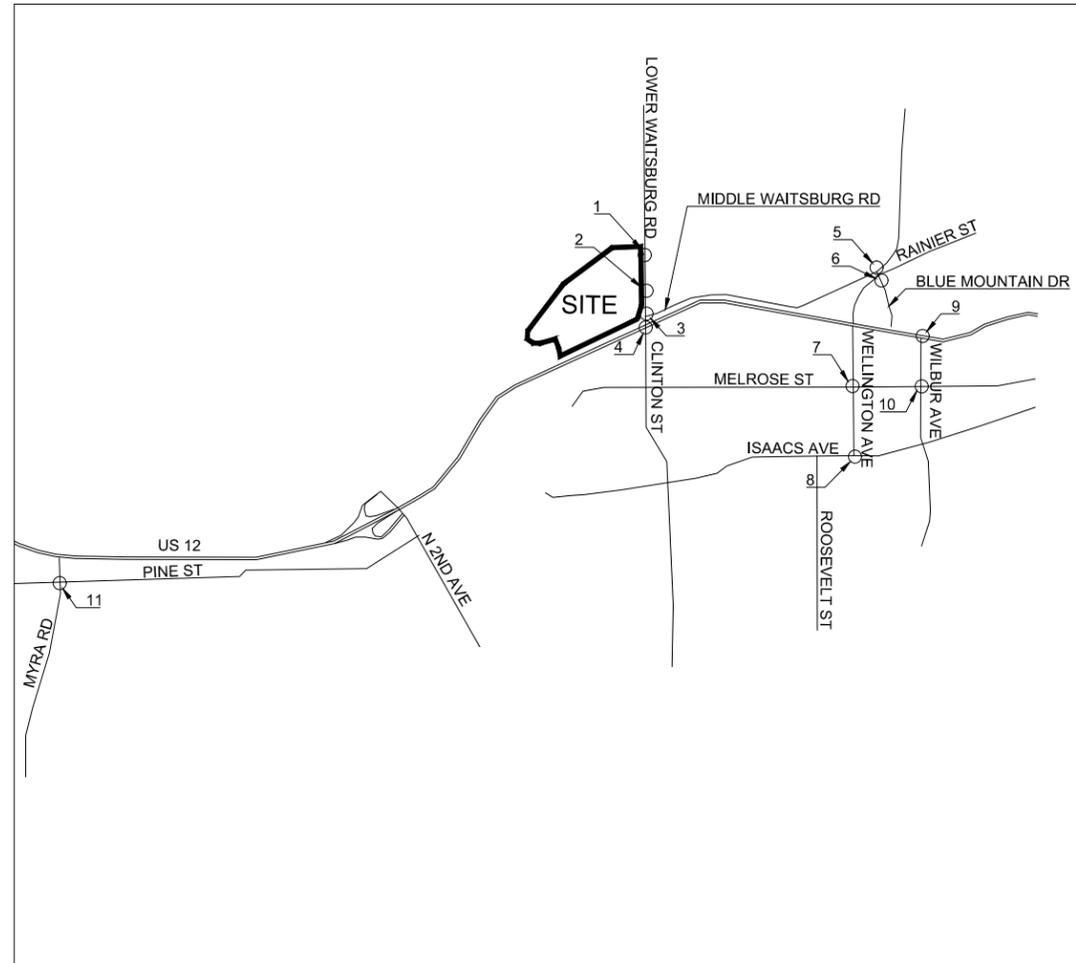
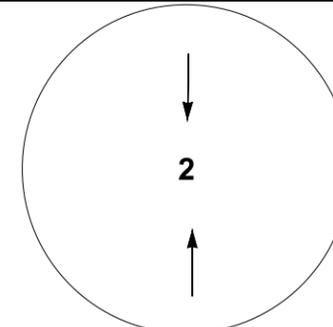


FIGURE 2

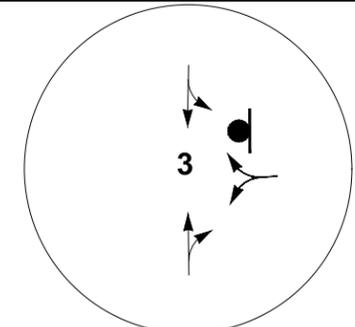
Site Plan Harvey Ranch Estates



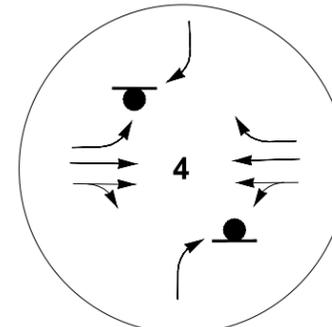
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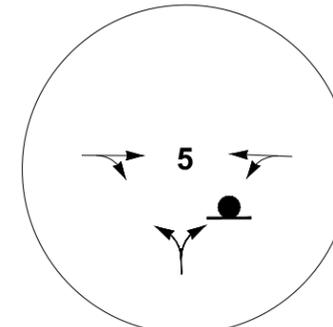
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Southern Subdivision Access



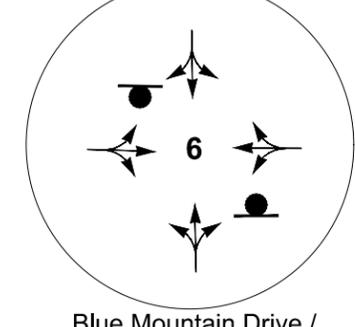
Lower Waitsburg Road /
Middle Waitsburg Road



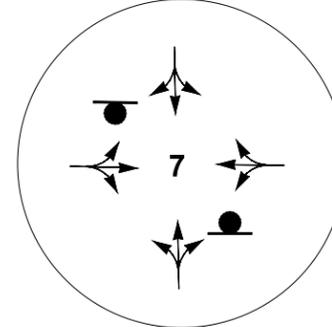
Lower Waitsburg Road /
Clinton Street / US 12



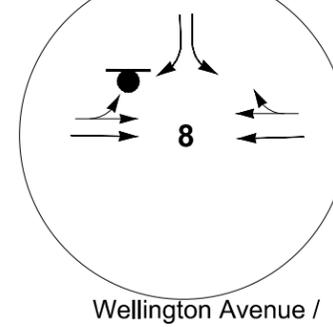
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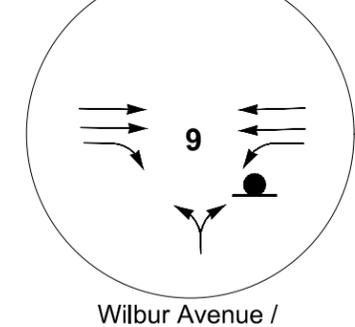
Blue Mountain Drive /
Rainier Street



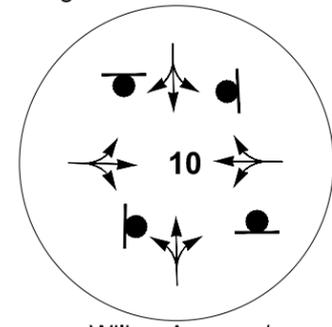
Wellington Avenue / Melrose Street



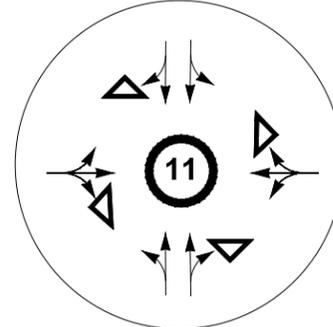
Wellington Avenue /
Isaacs Avenue



Wilbur Avenue /
US 12



Wilbur Avenue /
Melrose Street



Myra Road / Heritage Road /
Pine Street

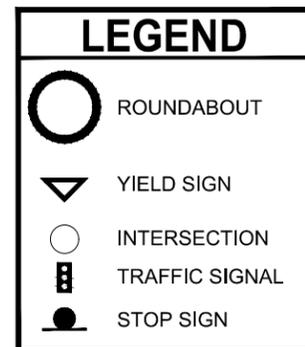
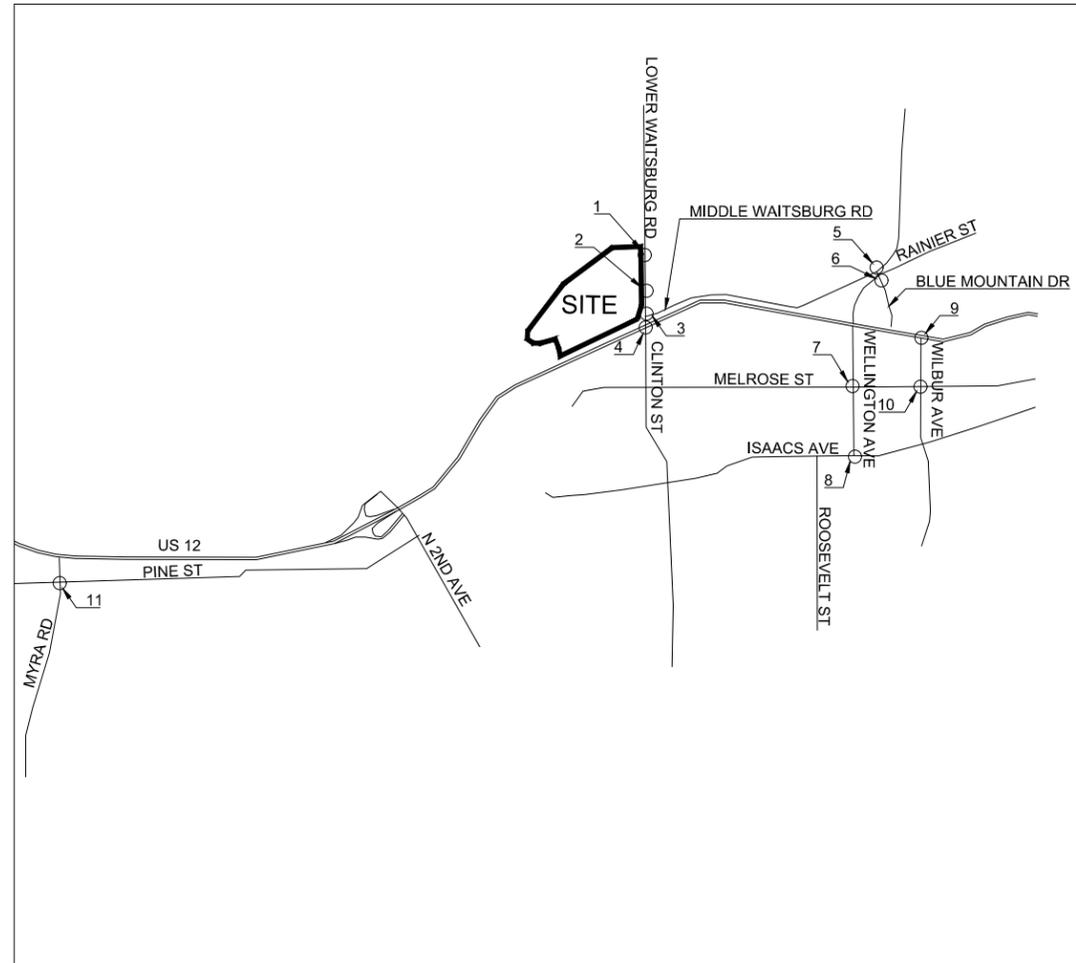


FIGURE 3

Existing Lane Configurations and Traffic Controls
Harvey Ranch Estates



LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR

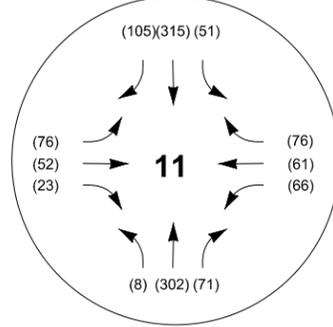
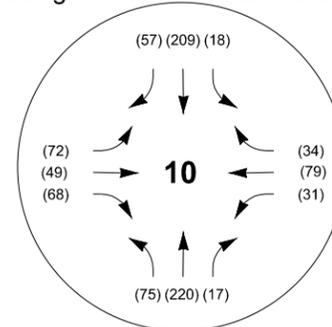
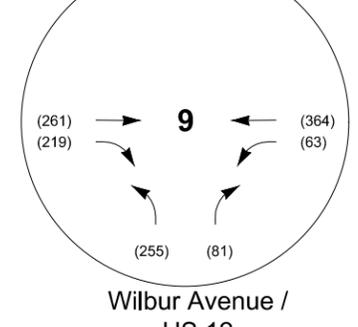
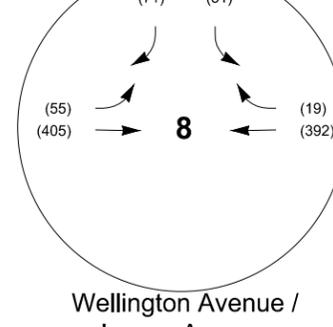
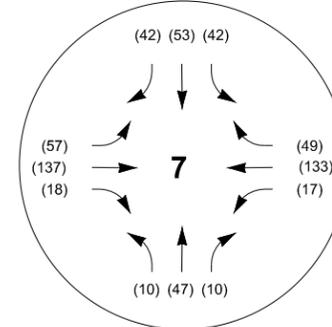
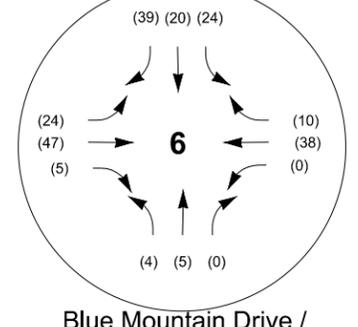
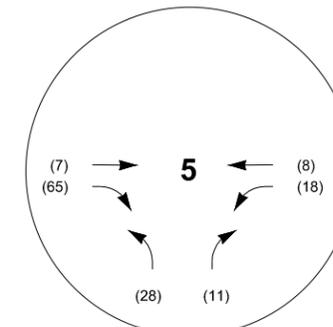
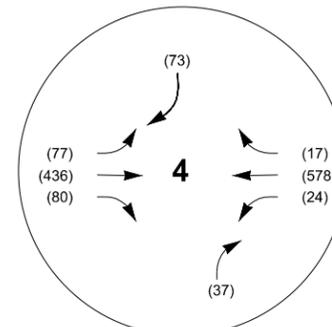
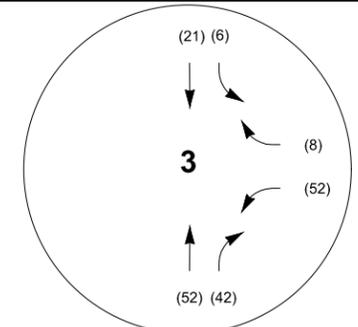
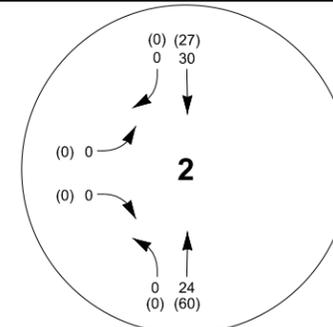
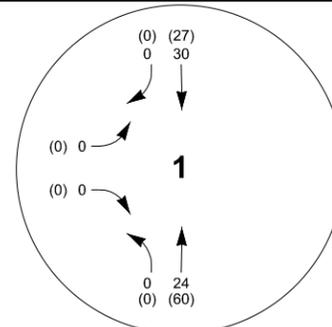
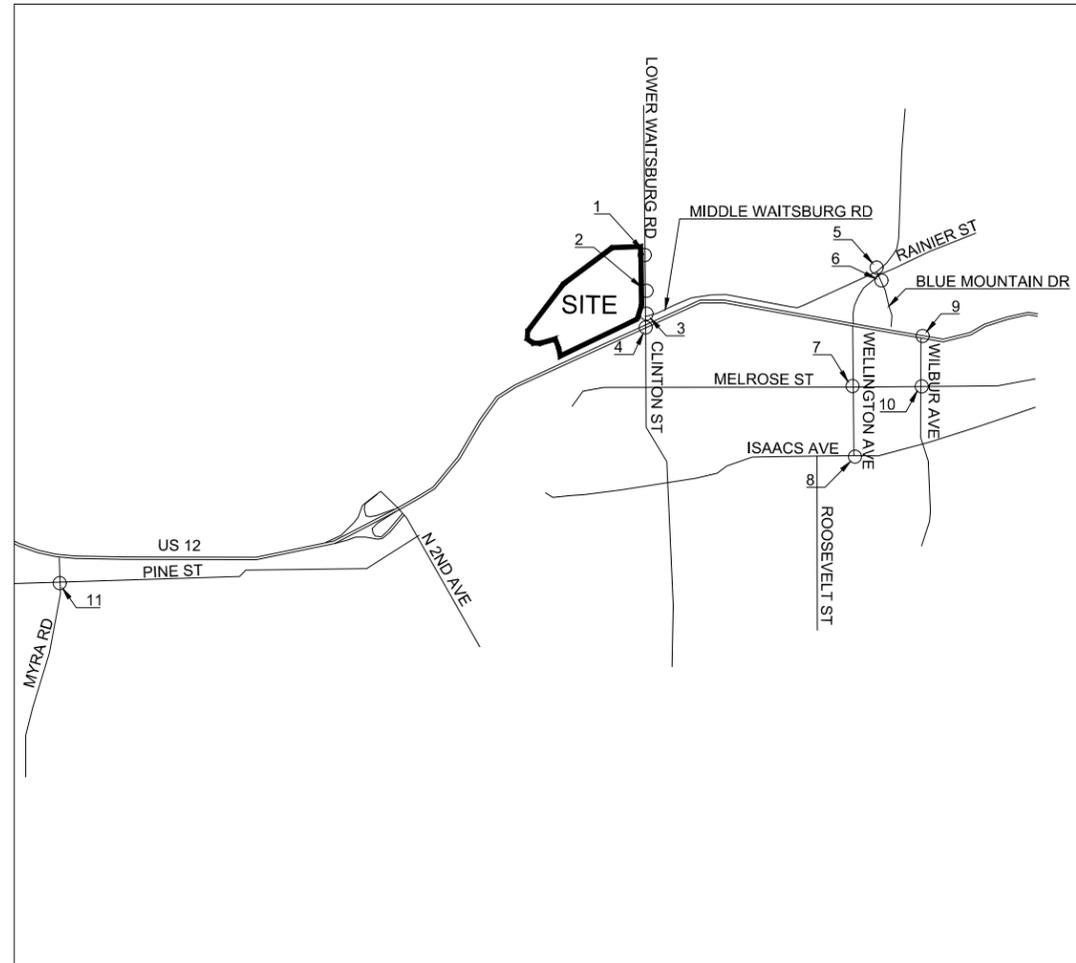
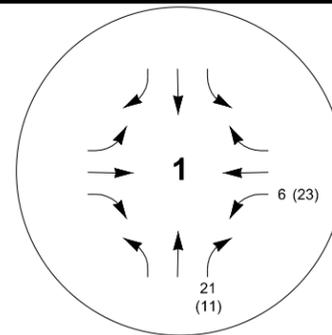


FIGURE 4

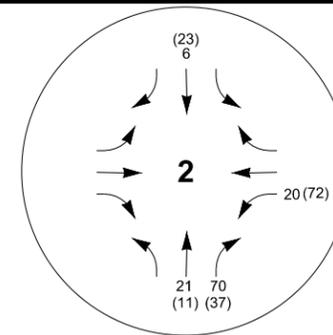
2020 Baseline Volumes Harvey Ranch Estates



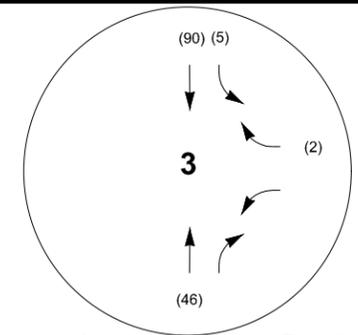
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



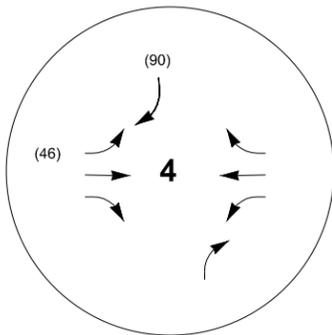
Lower Waitsburg Road /
Northern Subdivision Access



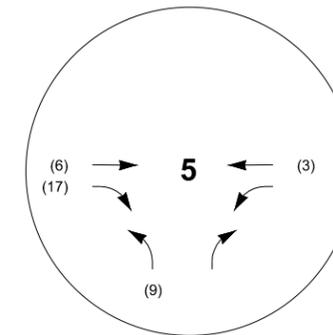
Lower Waitsburg Road /
Southern Subdivision Access



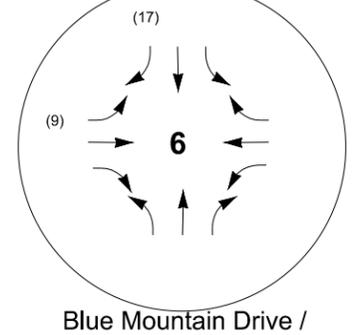
Lower Waitsburg Road /
Middle Waitsburg Road



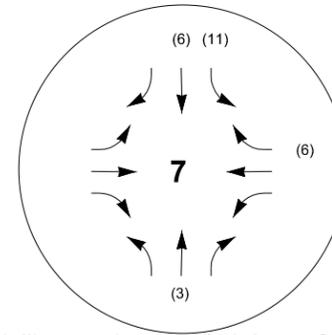
Lower Waitsburg Road /
Clinton Street / US 12



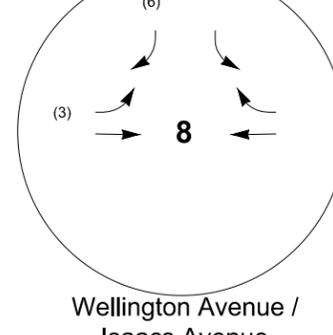
Blue Mountain Drive / Middle Waitsburg Road



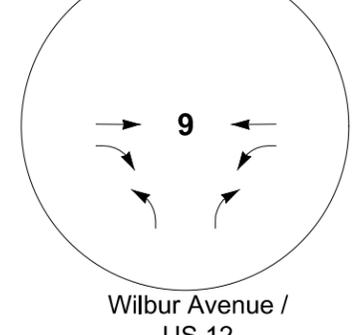
Blue Mountain Drive /
Rainier Street



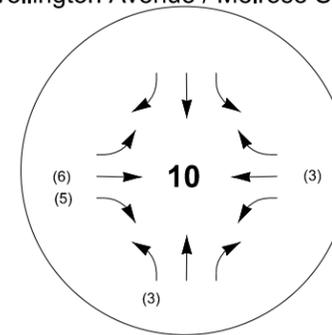
Wellington Avenue / Melrose Street



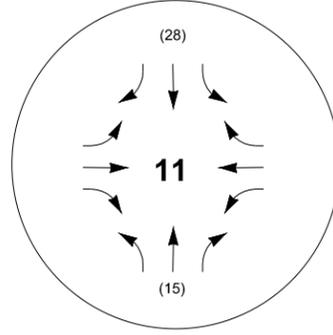
Wellington Avenue /
Isaacs Avenue



Wilbur Avenue /
US 12



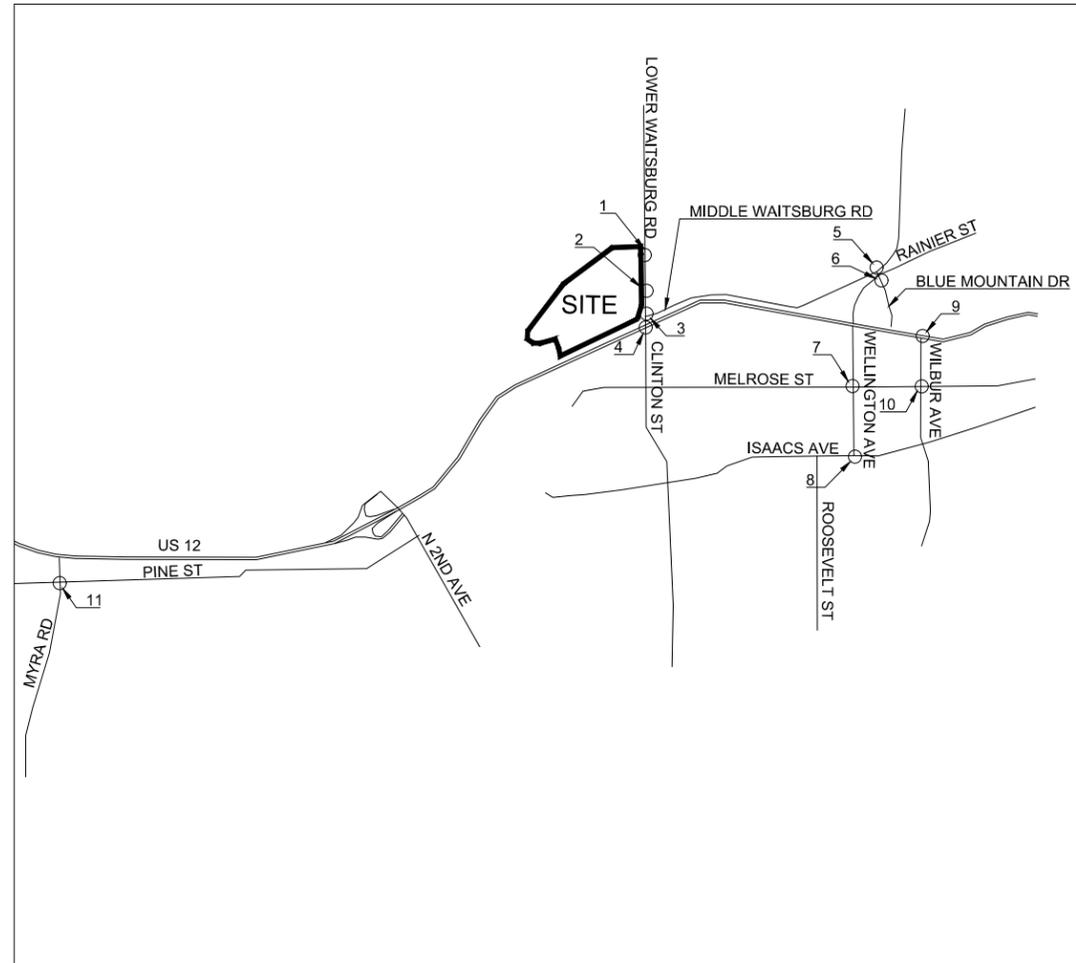
Wilbur Avenue /
Melrose Street



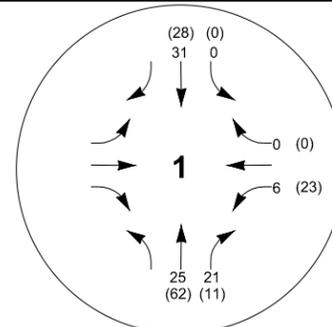
Myra Road / Heritage Road /
Pine Street

FIGURE 5

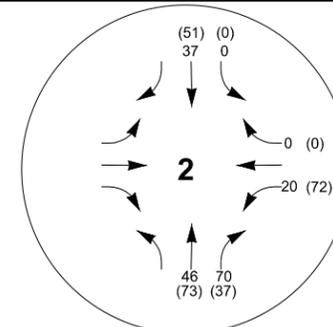
In-Process Project Volumes Harvey Ranch Estates



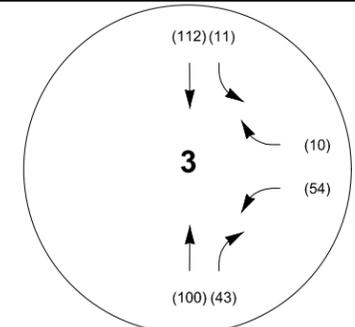
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



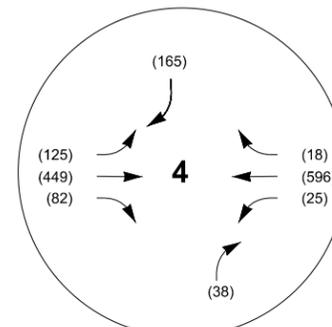
Lower Waitsburg Road /
Northern Subdivision Access



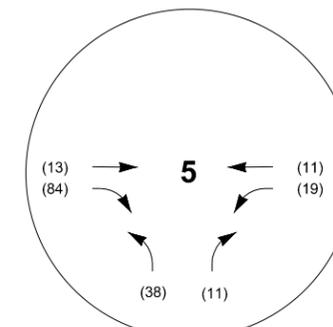
Lower Waitsburg Road /
Southern Subdivision Access



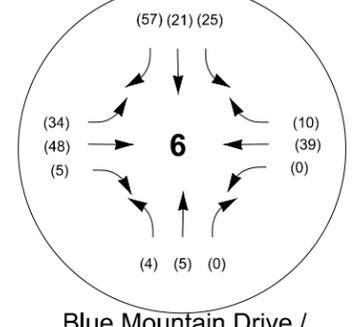
Lower Waitsburg Road /
Middle Waitsburg Road



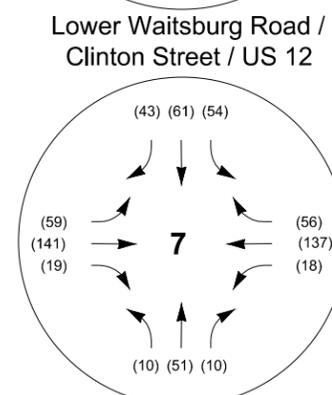
Lower Waitsburg Road /
Clinton Street / US 12



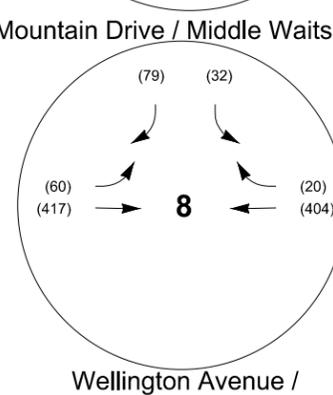
Blue Mountain Drive / Middle Waitsburg Road



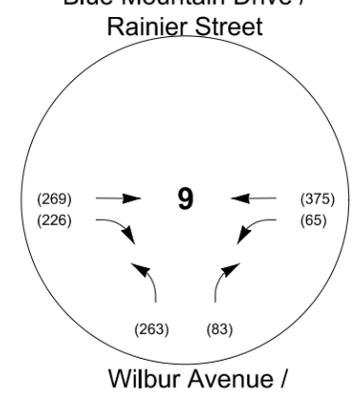
Blue Mountain Drive /
Rainier Street



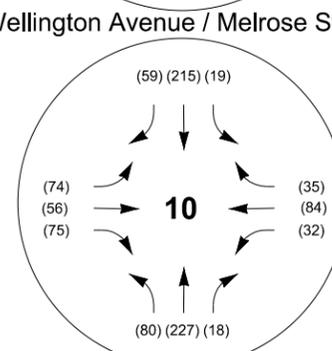
Wellington Avenue / Melrose Street



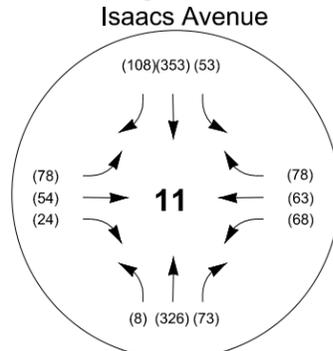
Wellington Avenue /
Isaacs Avenue



Wilbur Avenue /
US 12



Wilbur Avenue /
Melrose Street



Myra Road / Heritage Road /
Pine Street

FIGURE 6

2023 Without Project Volumes Harvey Ranch Estates

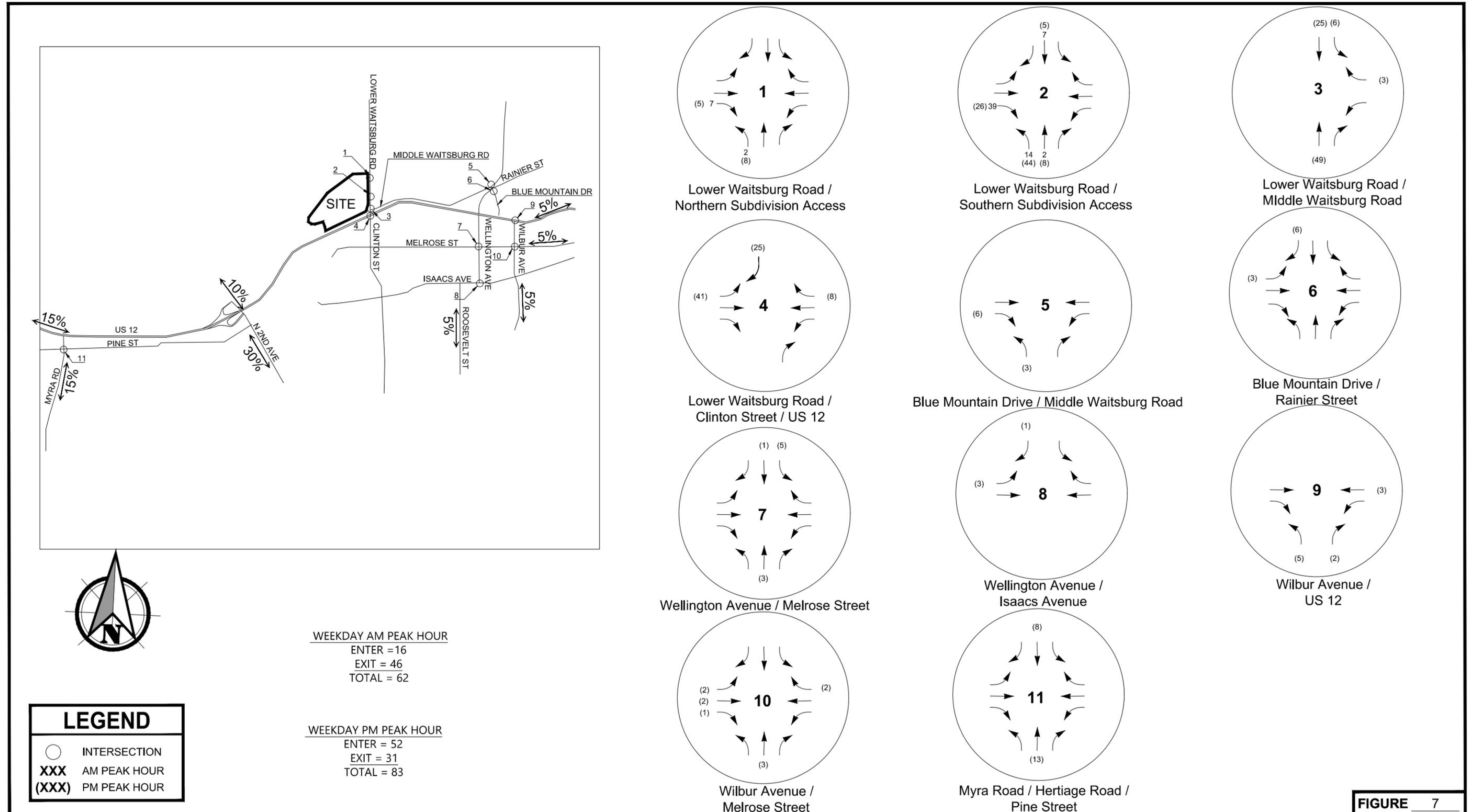
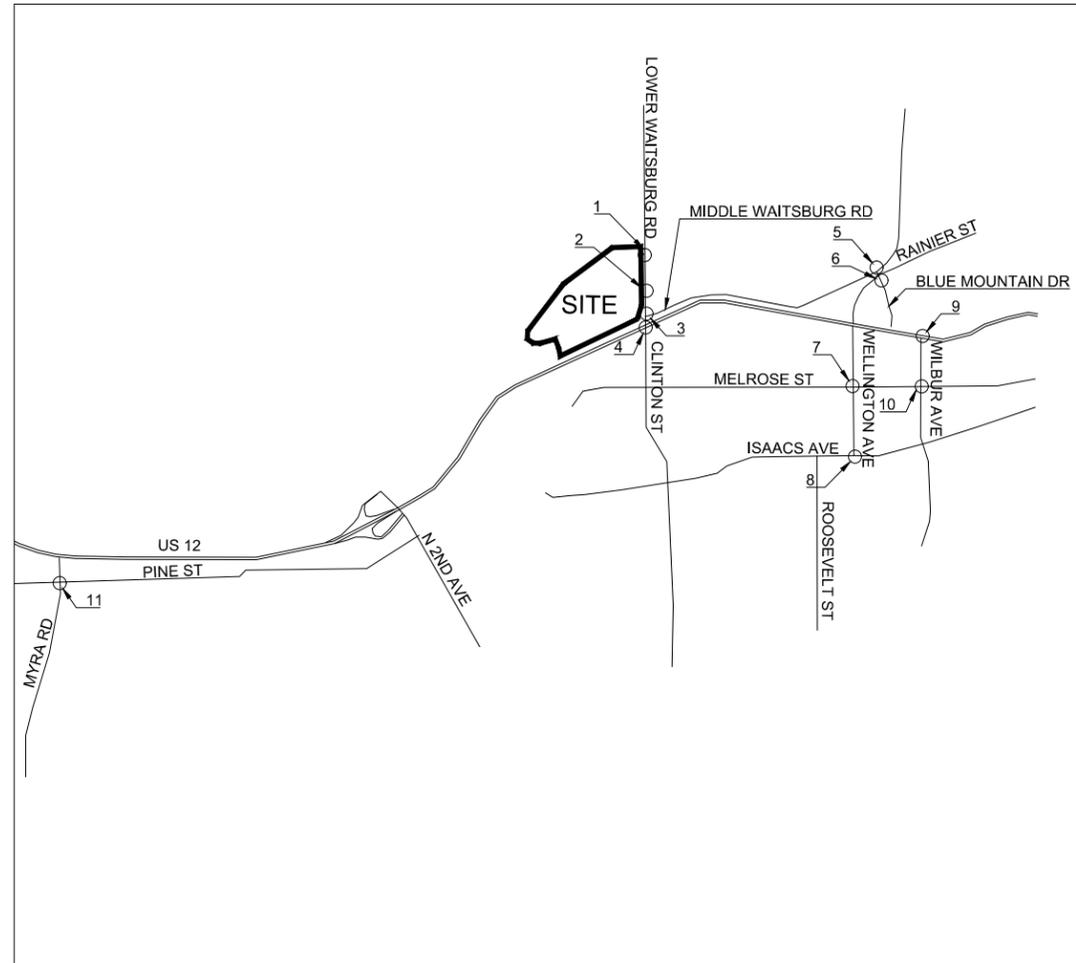
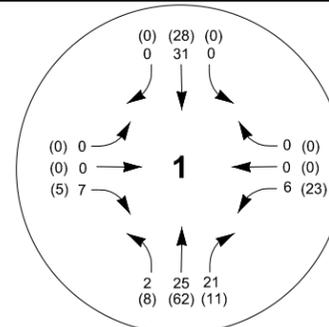


FIGURE 7

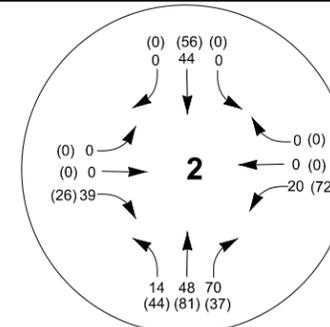
Trip Distribution and Assignment (Stage 1) Harvey Ranch Estates



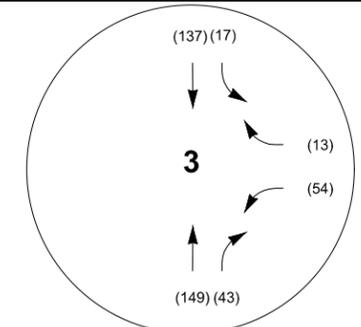
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



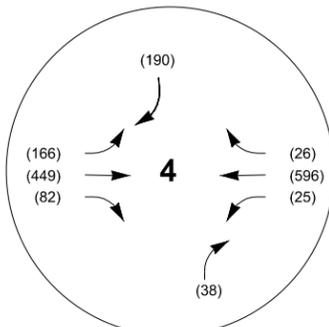
Lower Waitsburg Road /
Northern Subdivision Access



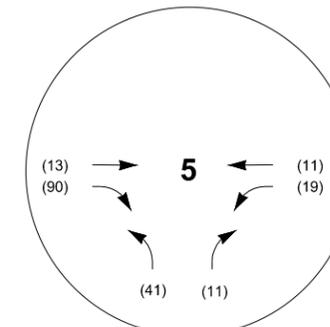
Lower Waitsburg Road /
Southern Subdivision Access



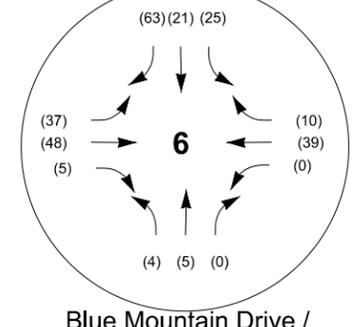
Lower Waitsburg Road /
Middle Waitsburg Road



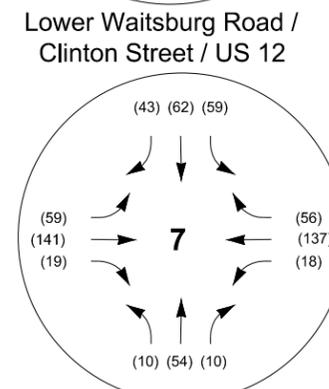
Lower Waitsburg Road /
Clinton Street / US 12



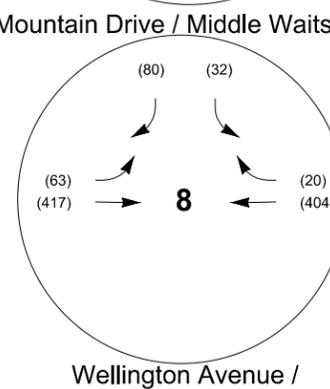
Blue Mountain Drive / Middle Waitsburg Road



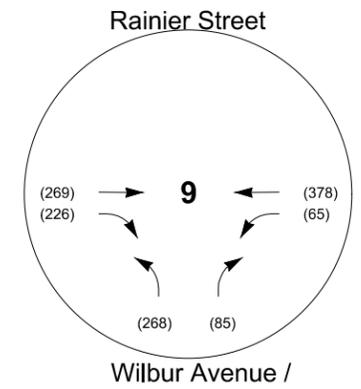
Blue Mountain Drive /
Rainier Street



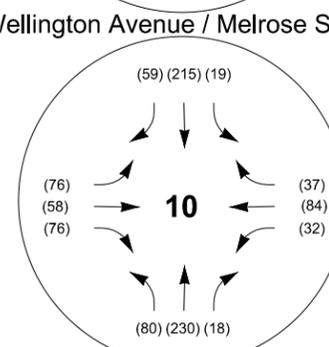
Wellington Avenue / Melrose Street



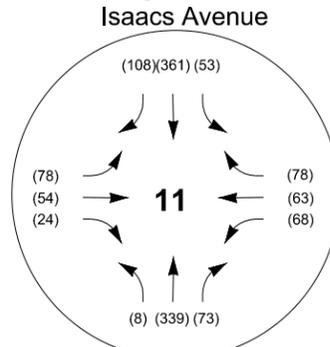
Wellington Avenue /
Isaacs Avenue



Wilbur Avenue /
US 12



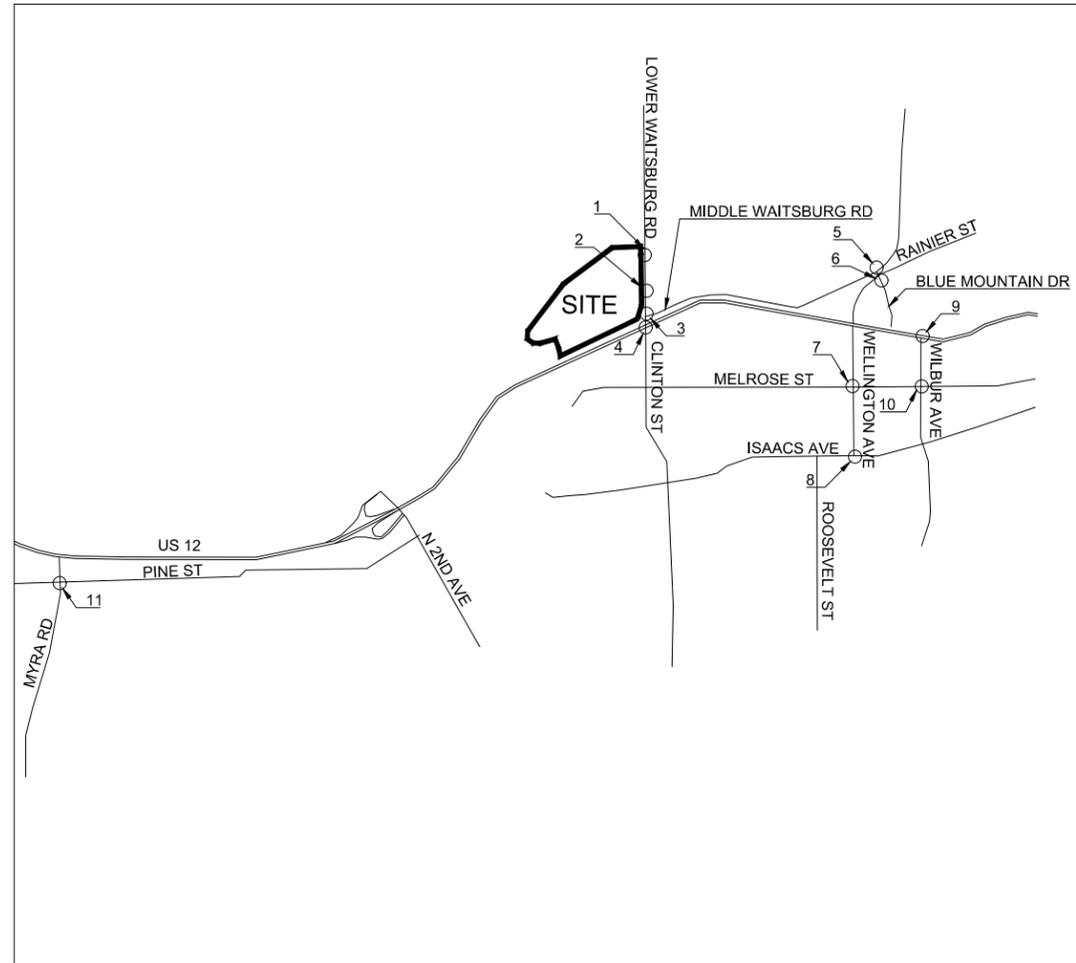
Wilbur Avenue /
Melrose Street



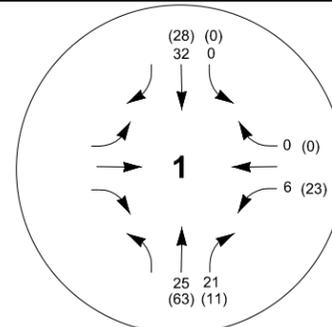
Myra Road / Hertiage Road /
Pine Street

FIGURE 8

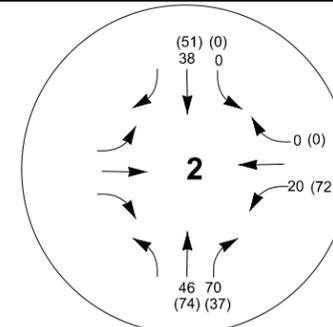
2023 With Project Volumes (Stage 1) Harvey Ranch Estates



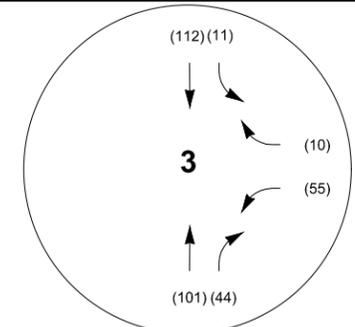
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



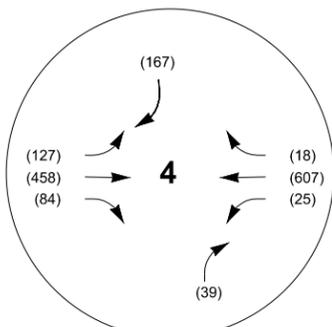
Lower Waitsburg Road / Northern Subdivision Access



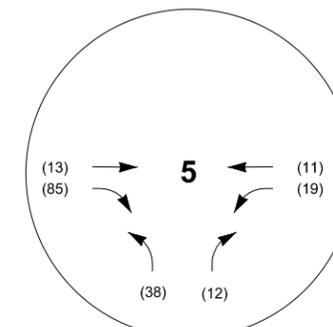
Lower Waitsburg Road / Southern Subdivision Access



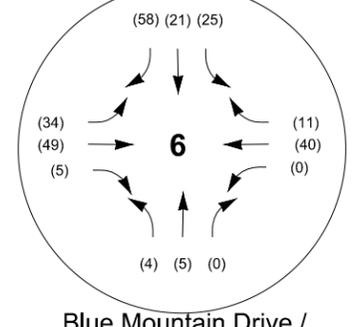
Lower Waitsburg Road / Middle Waitsburg Road



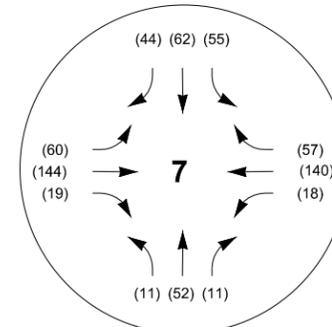
Lower Waitsburg Road / Clinton Street / US 12



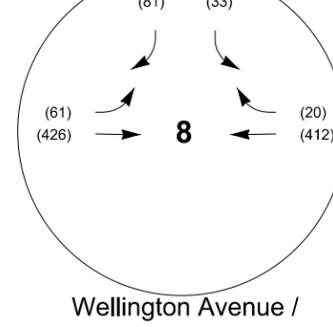
Blue Mountain Drive / Middle Waitsburg Road



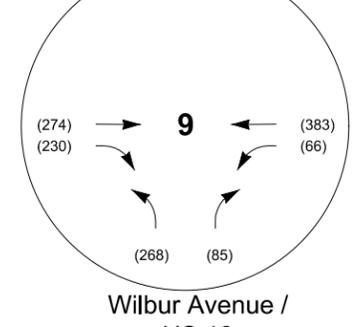
Blue Mountain Drive / Rainier Street



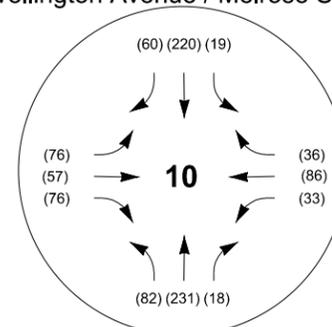
Wellington Avenue / Melrose Street



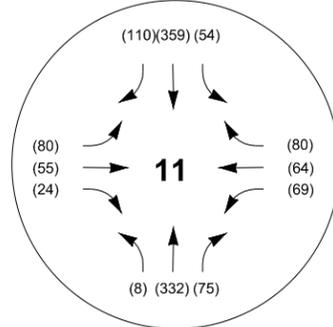
Wellington Avenue / Isaacs Avenue



Wilbur Avenue / US 12



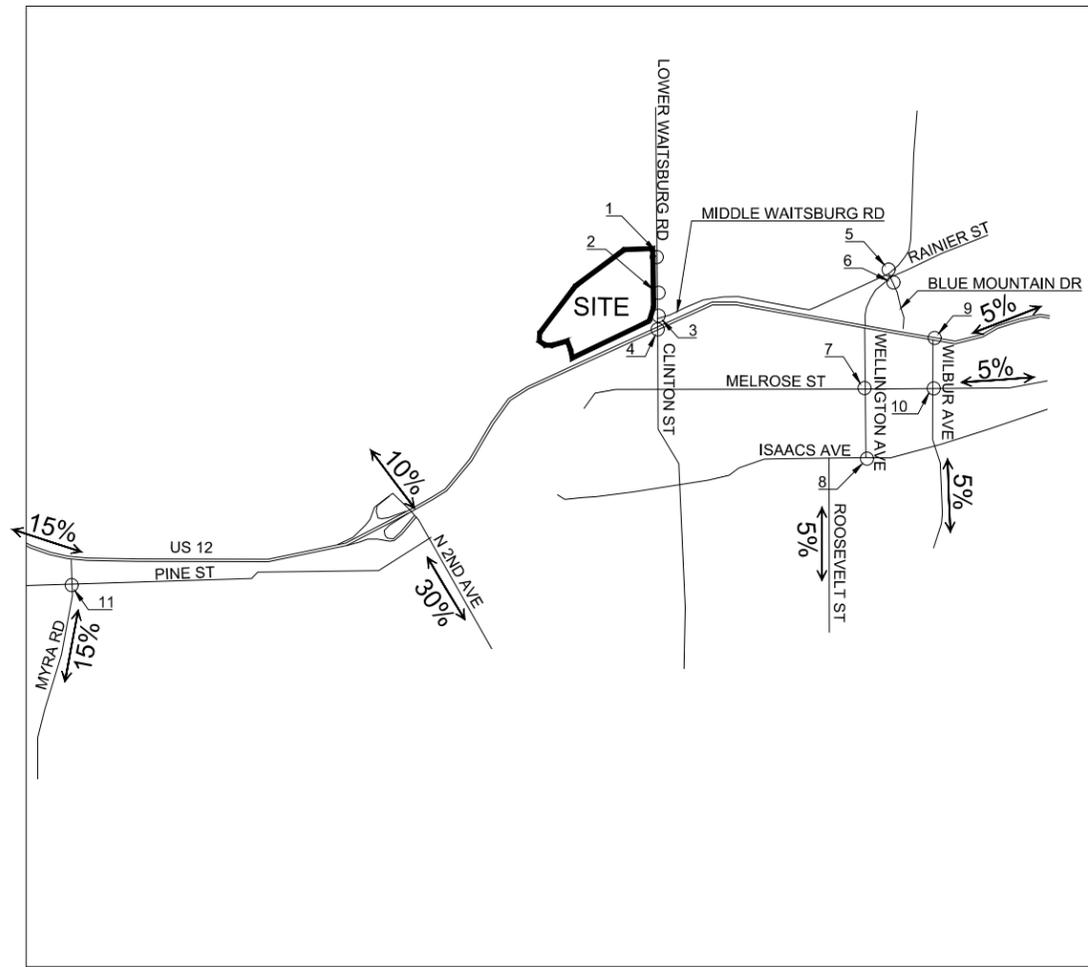
Wilbur Avenue / Melrose Street



Myra Road / Heritage Road / Pine Street

FIGURE 9

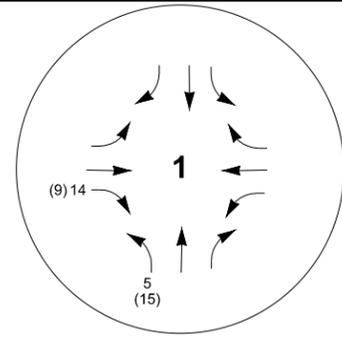
2025 Without Project Volumes Harvey Ranch Estates



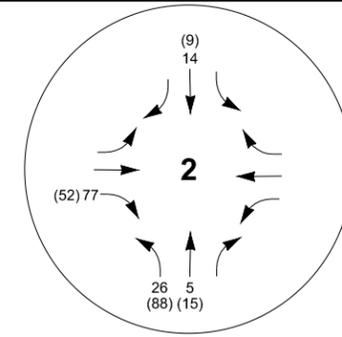
WEEKDAY AM PEAK HOUR
ENTER = 31
EXIT = 91
TOTAL = 122

WEEKDAY PM PEAK HOUR
ENTER = 103
EXIT = 61
TOTAL = 164

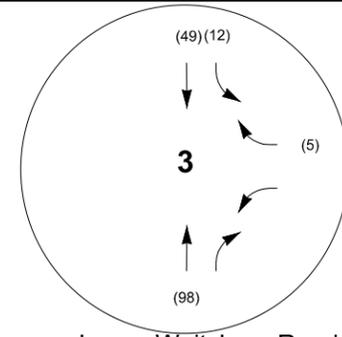
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



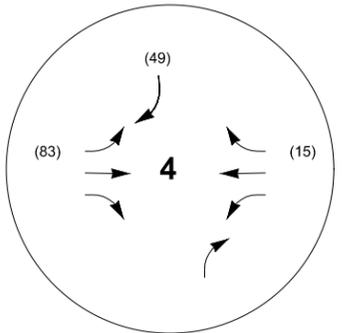
Lower Waitsburg Road / Northern Subdivision Access



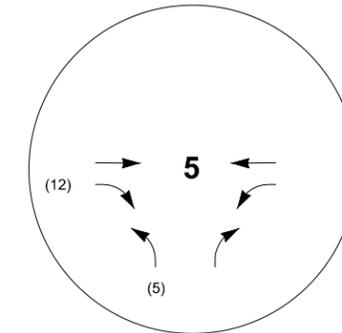
Lower Waitsburg Road / Southern Subdivision Access



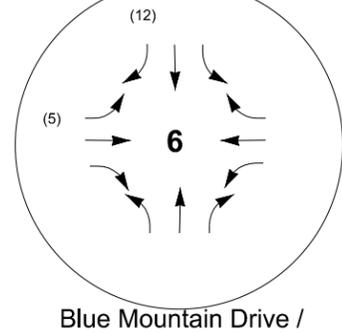
Lower Waitsburg Road / Middle Waitsburg Road



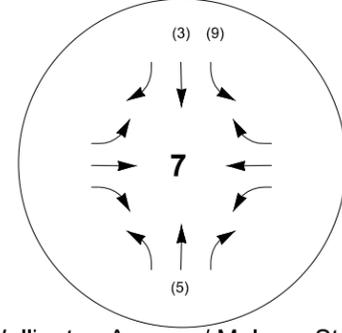
Lower Waitsburg Road / Clinton Street / US 12



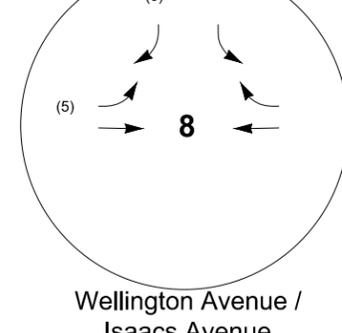
Blue Mountain Drive / Middle Waitsburg Road



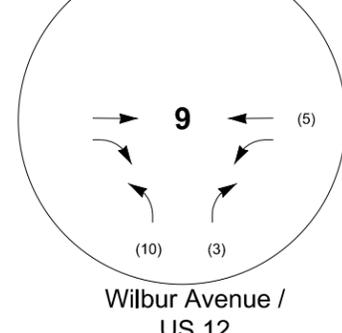
Blue Mountain Drive / Rainier Street



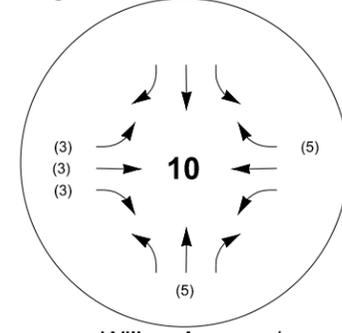
Wellington Avenue / Melrose Street



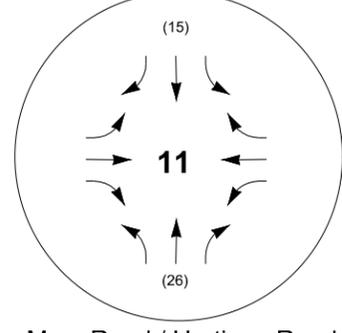
Wellington Avenue / Isaacs Avenue



Wilbur Avenue / US 12



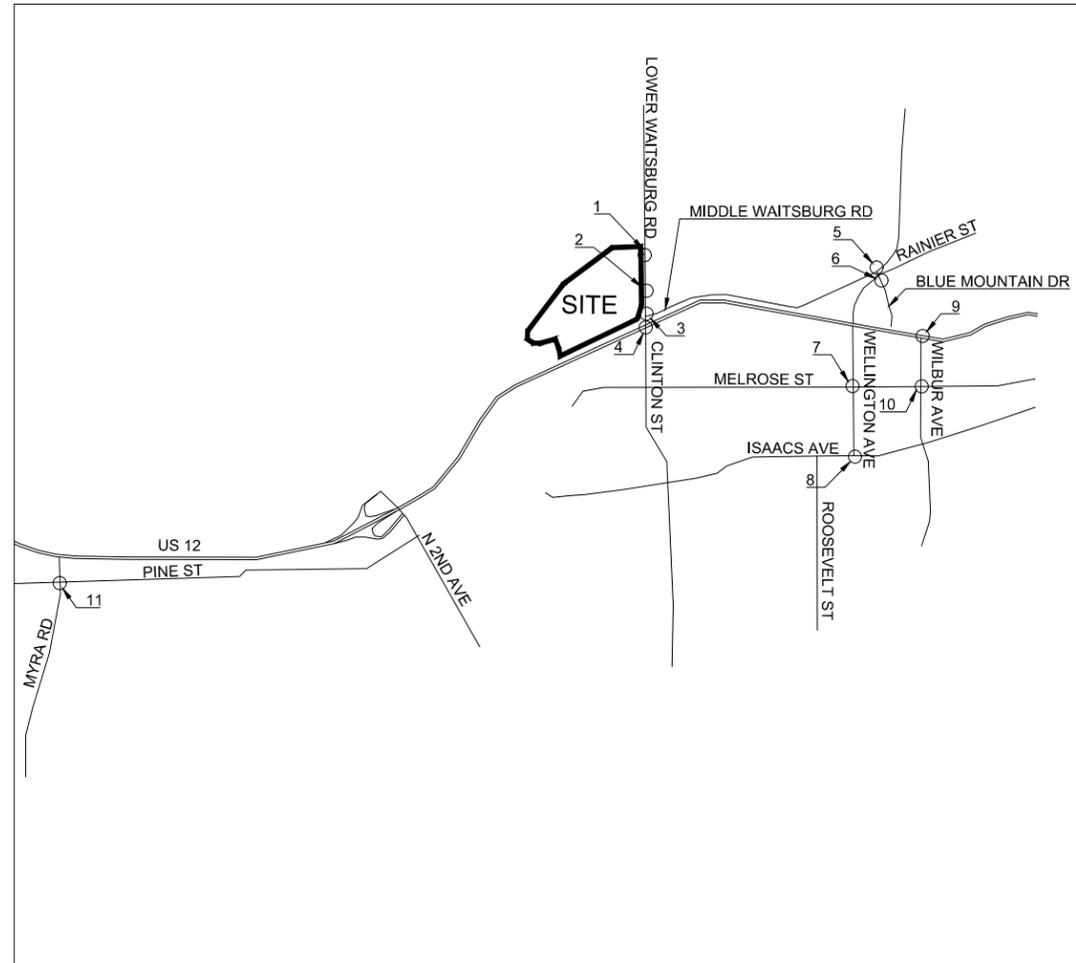
Wilbur Avenue / Melrose Street



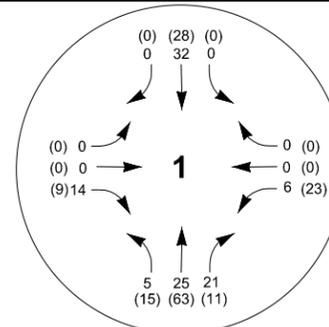
Myra Road / Heritage Road / Pine Street

FIGURE 10

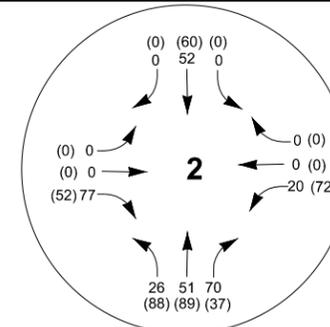
Trip Distribution and Assignment (Stage 1 & 2) Harvey Ranch Estates



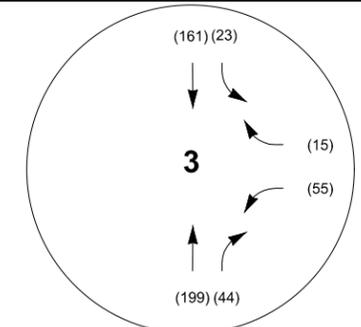
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



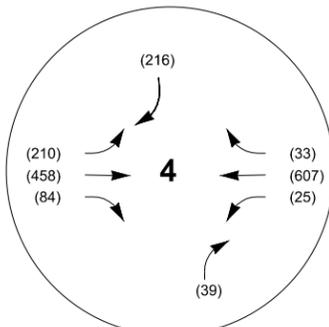
Lower Waitsburg Road / Northern Subdivision Access



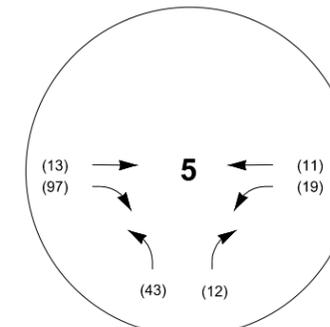
Lower Waitsburg Road / Southern Subdivision Access



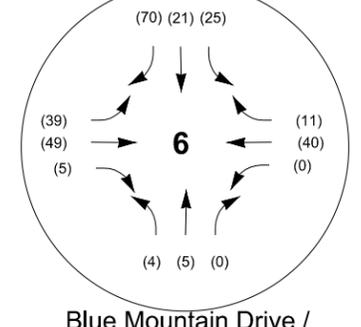
Lower Waitsburg Road / Middle Waitsburg Road



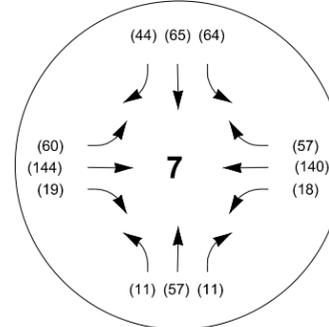
Lower Waitsburg Road / Clinton Street / US 12



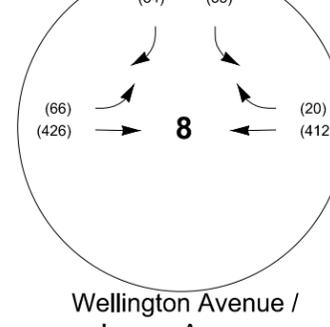
Blue Mountain Drive / Middle Waitsburg Road



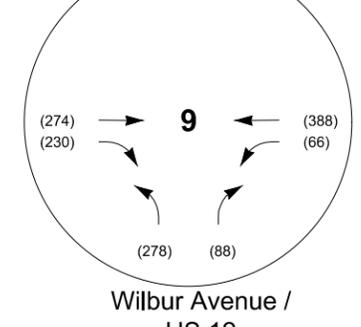
Blue Mountain Drive / Rainier Street



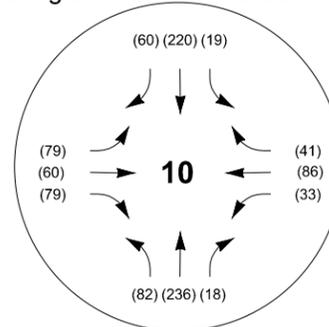
Wellington Avenue / Melrose Street



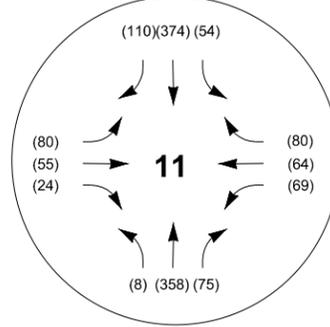
Wellington Avenue / Isaacs Avenue



Wilbur Avenue / US 12



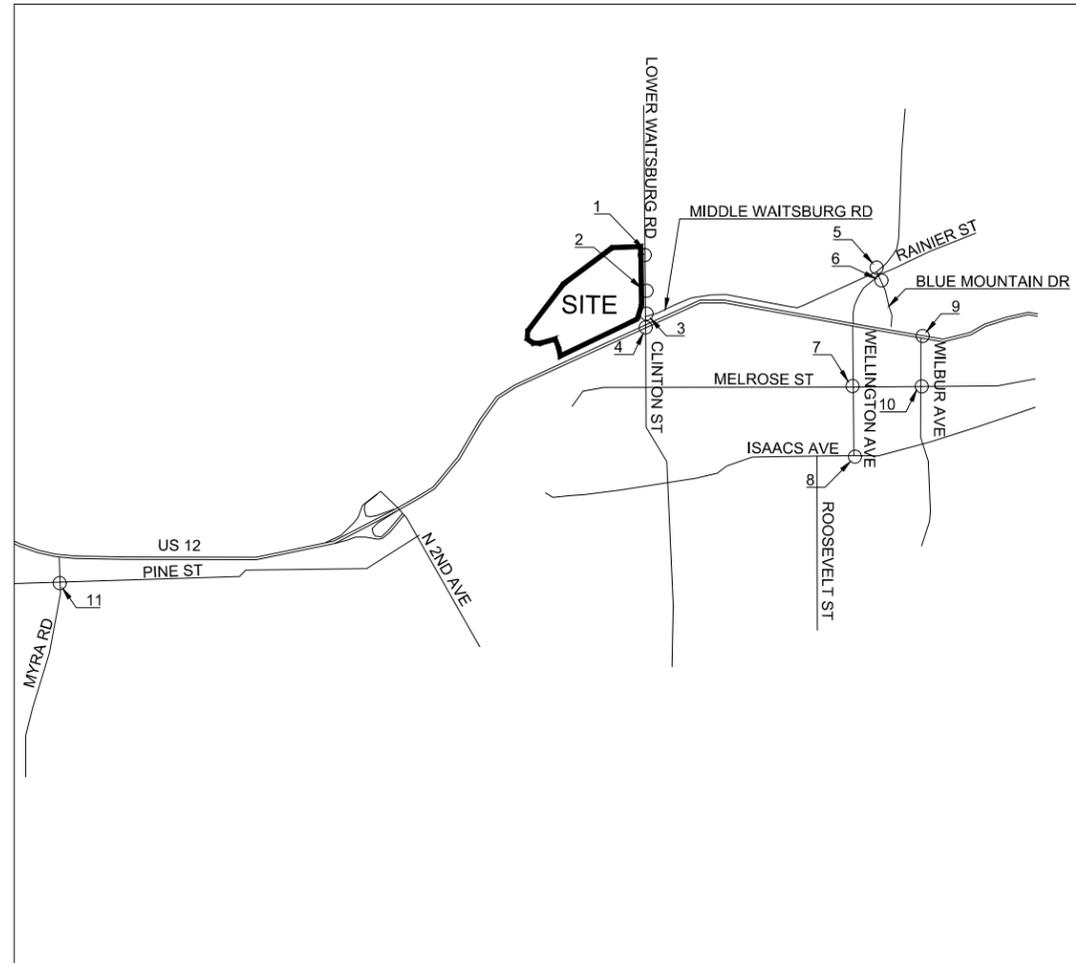
Wilbur Avenue / Melrose Street



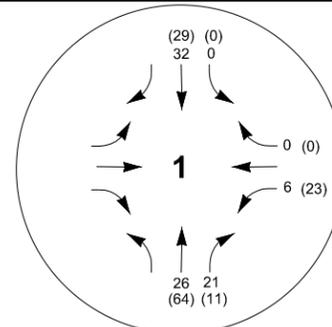
Myra Road / Heritage Road / Pine Street

FIGURE 11

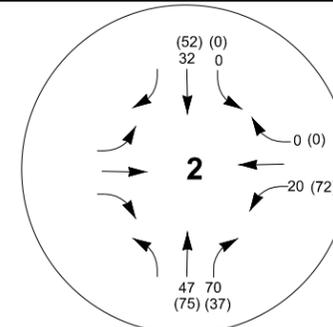
2025 With Project Volumes (Stage 1 & 2) Harvey Ranch Estates



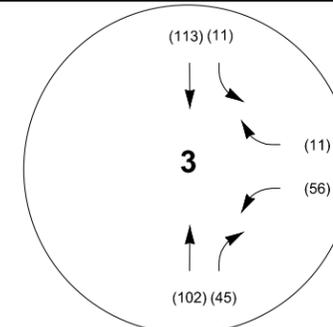
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



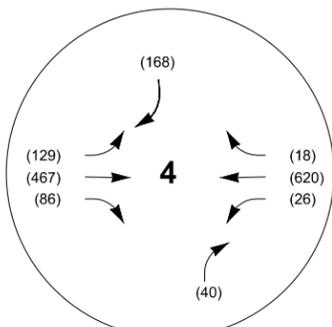
Lower Waitsburg Road / Northern Subdivision Access



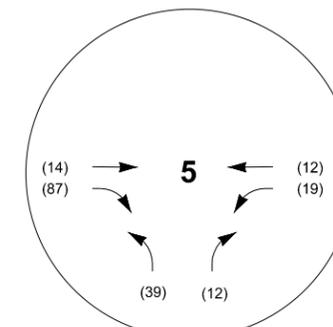
Lower Waitsburg Road / Southern Subdivision Access



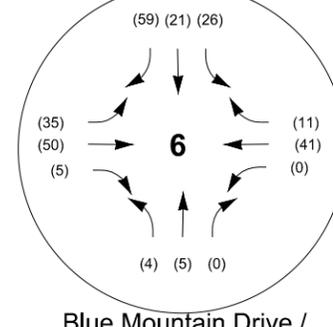
Lower Waitsburg Road / Middle Waitsburg Road



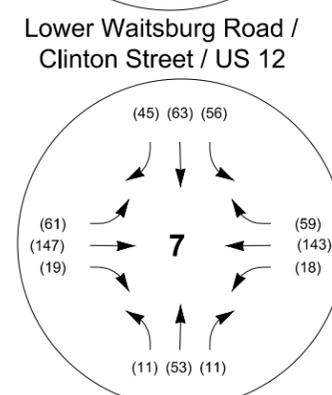
Lower Waitsburg Road / Clinton Street / US 12



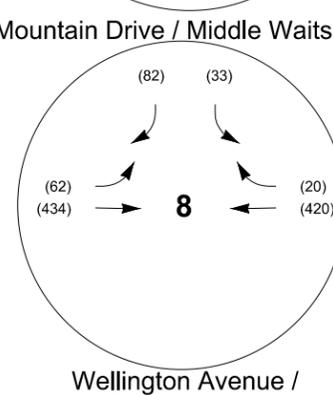
Blue Mountain Drive / Middle Waitsburg Road



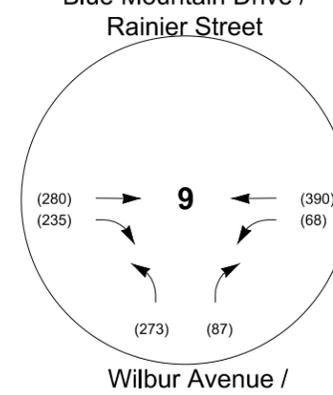
Blue Mountain Drive / Rainier Street



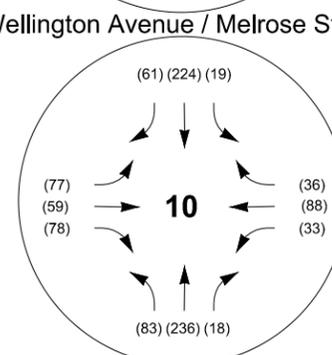
Wellington Avenue / Melrose Street



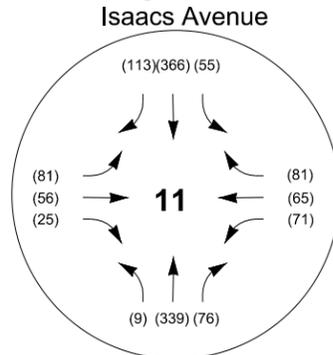
Wellington Avenue / Isaacs Avenue



Wilbur Avenue / US 12



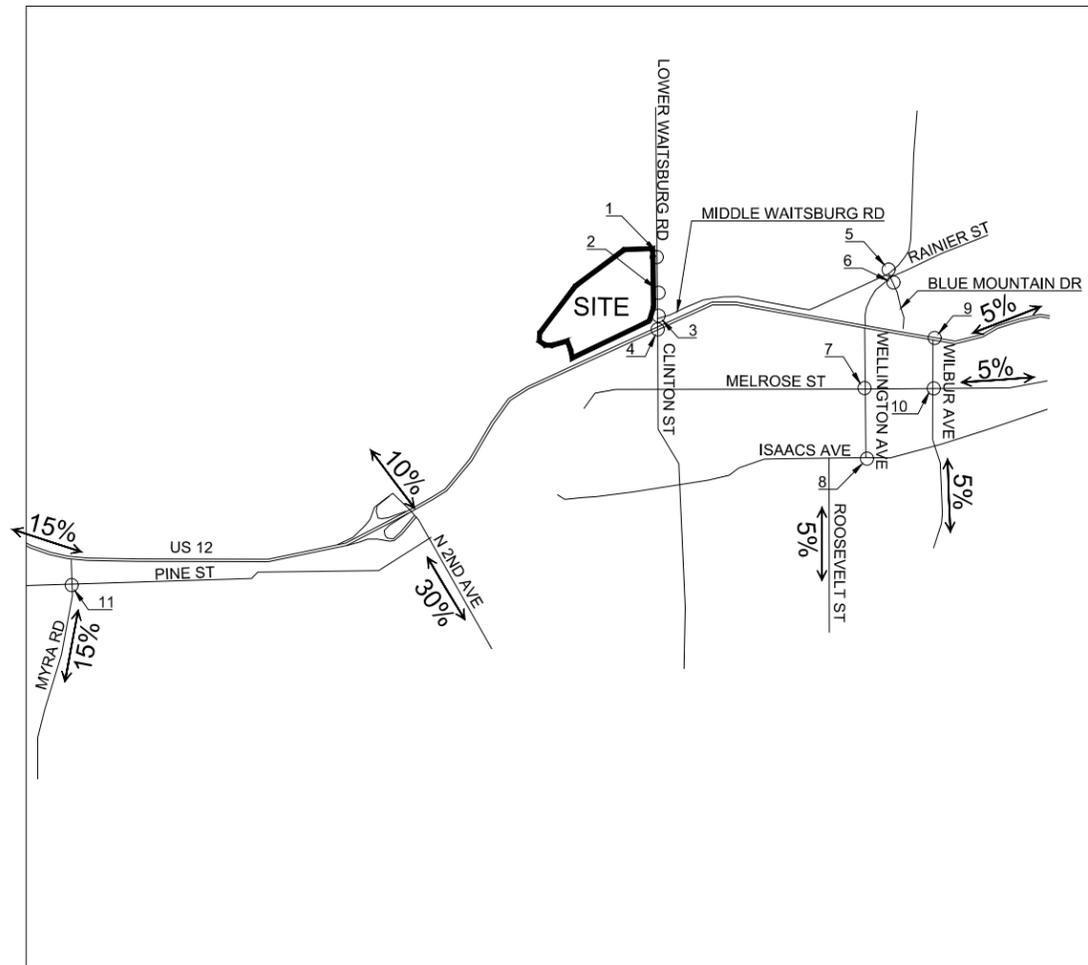
Wilbur Avenue / Melrose Street



Myra Road / Heritage Road / Pine Street

FIGURE 12

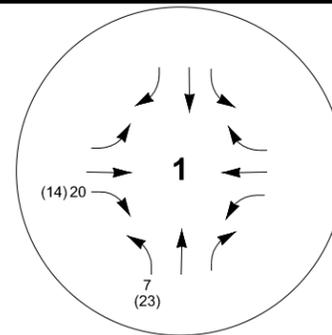
2027 Without Project Volumes Harvey Ranch Estates



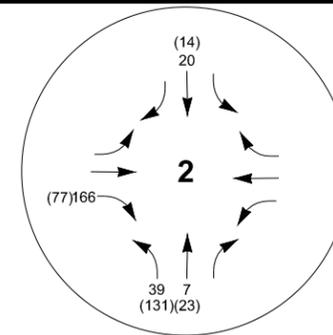
WEEKDAY AM PEAK HOUR
ENTER = 46
EXIT = 136
TOTAL = 182

WEEKDAY PM PEAK HOUR
ENTER = 154
EXIT = 91
TOTAL = 245

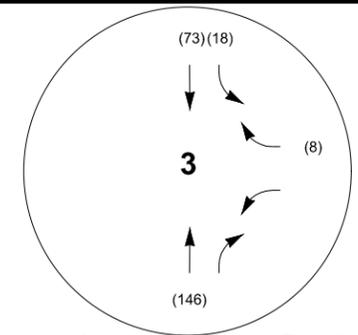
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



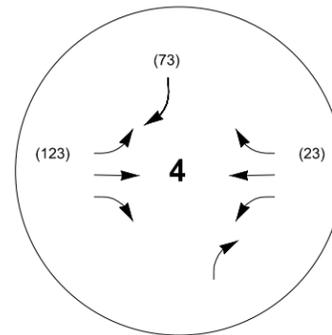
Lower Waitsburg Road /
Northern Subdivision Access



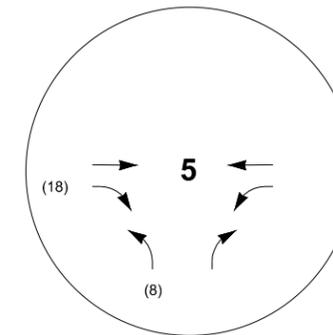
Lower Waitsburg Road /
Southern Subdivision Access



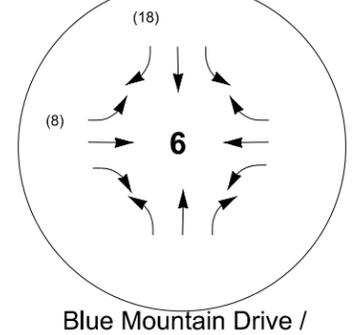
Lower Waitsburg Road /
Middle Waitsburg Road



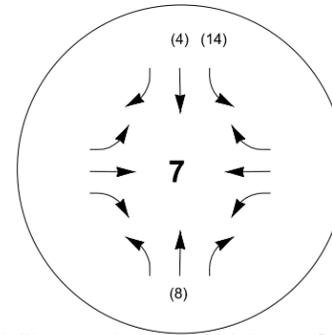
Lower Waitsburg Road /
Clinton Street / US 12



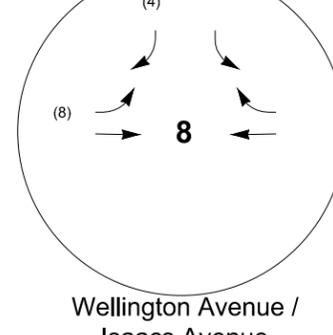
Blue Mountain Drive / Middle Waitsburg Road



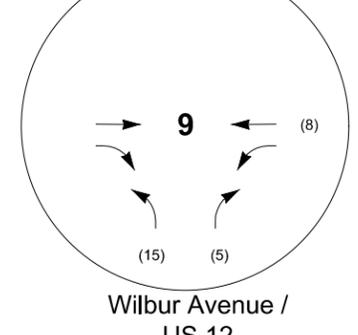
Blue Mountain Drive /
Rainier Street



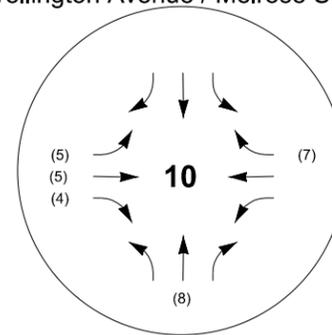
Wellington Avenue / Melrose Street



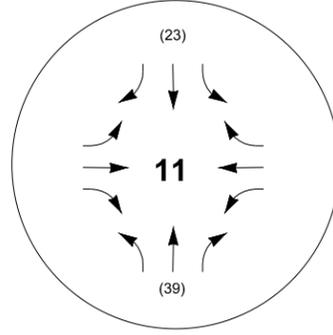
Wellington Avenue /
Isaacs Avenue



Wilbur Avenue /
US 12



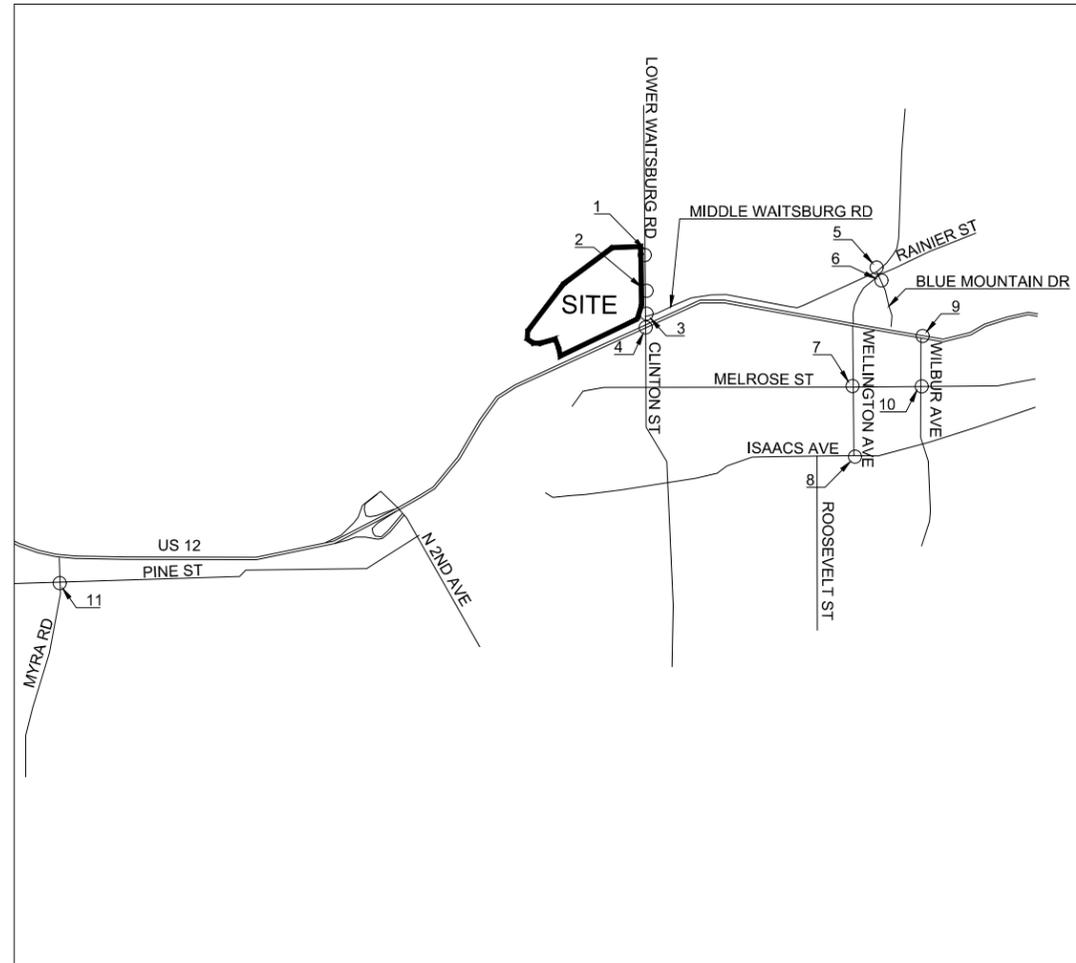
Wilbur Avenue /
Melrose Street



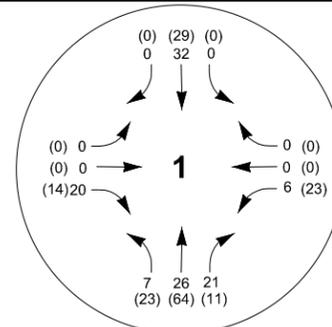
Myra Road / Heritage Road /
Pine Street

FIGURE 13

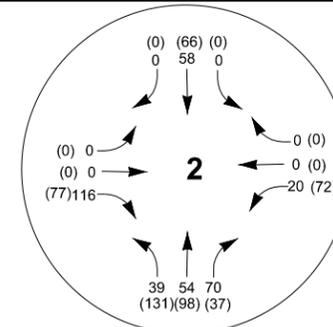
Trip Distribution and Assignment (Stage 1,2 & 3) Harvey Ranch Estates



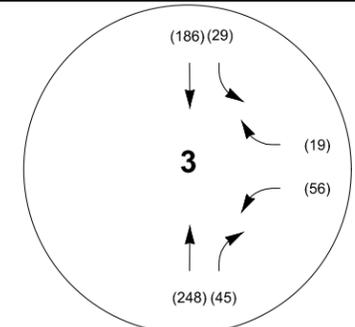
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



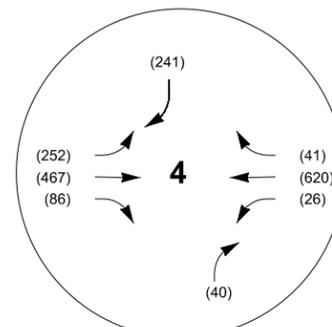
Lower Waitsburg Road / Northern Subdivision Access



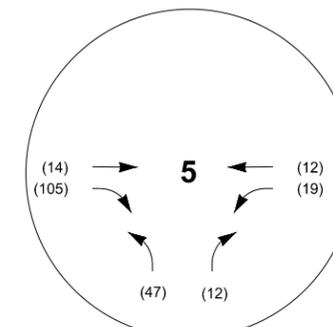
Lower Waitsburg Road / Southern Subdivision Access



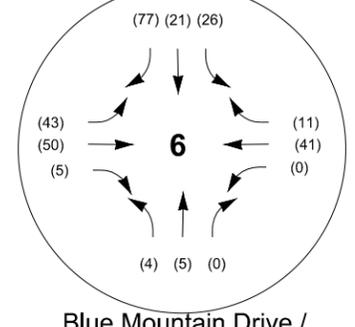
Lower Waitsburg Road / Middle Waitsburg Road



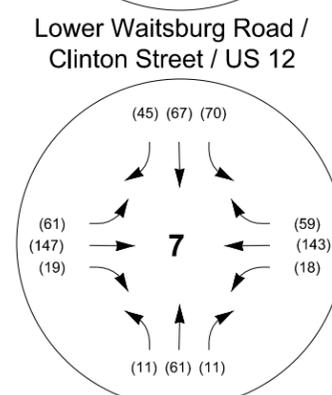
Lower Waitsburg Road / Clinton Street / US 12



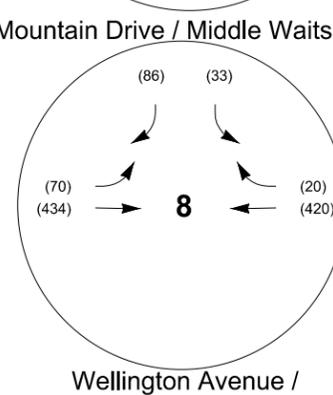
Blue Mountain Drive / Middle Waitsburg Road



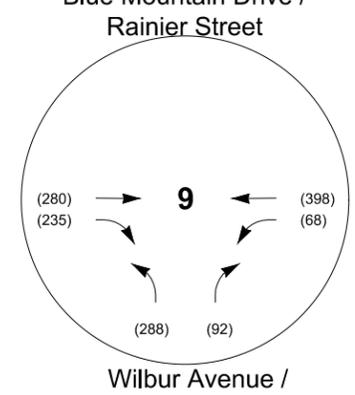
Blue Mountain Drive / Rainier Street



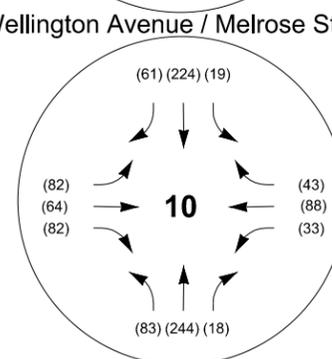
Wellington Avenue / Melrose Street



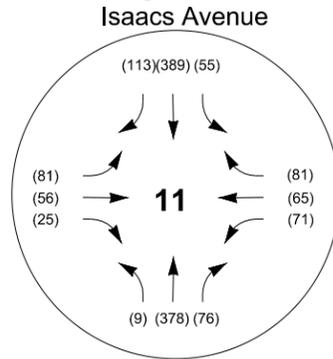
Wellington Avenue / Isaacs Avenue



Wilbur Avenue / US 12



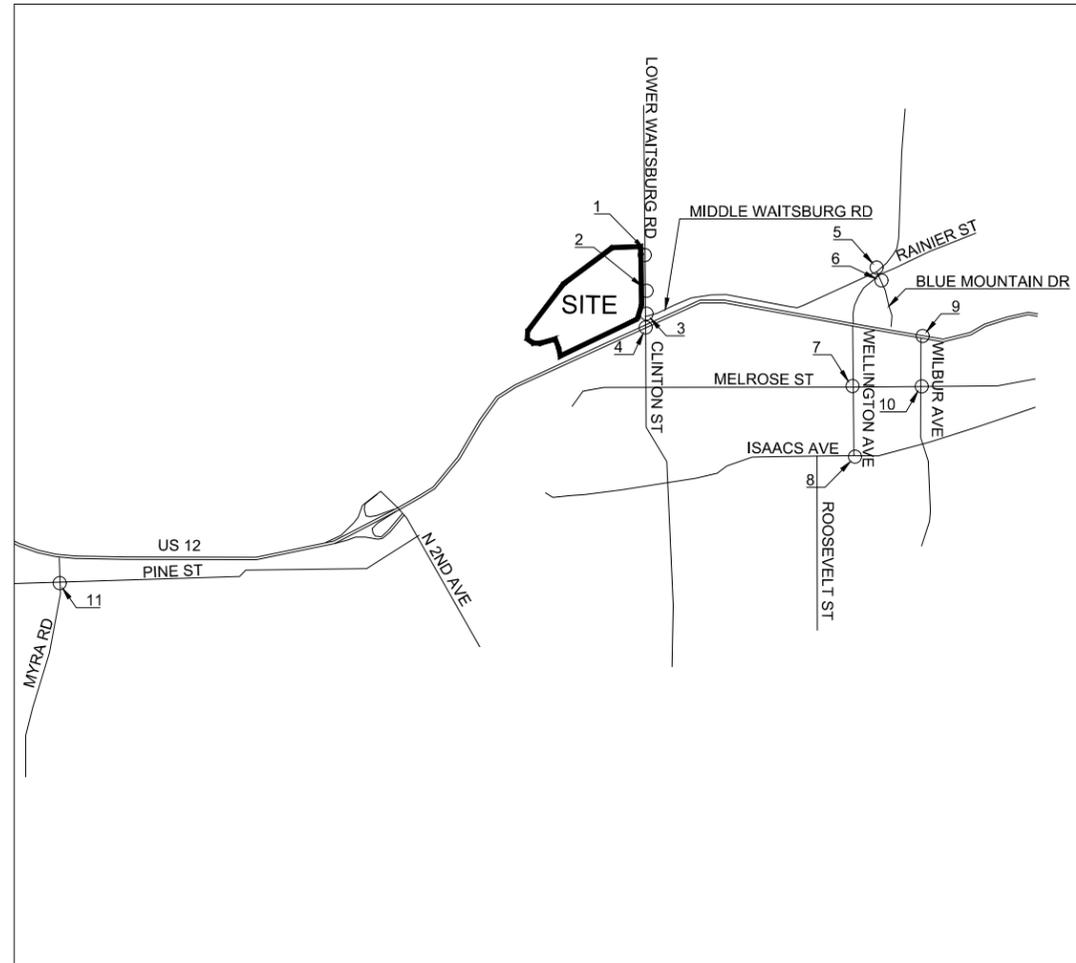
Wilbur Avenue / Melrose Street



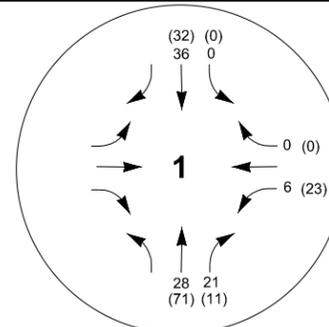
Myra Road / Heritage Road / Pine Street

FIGURE 14

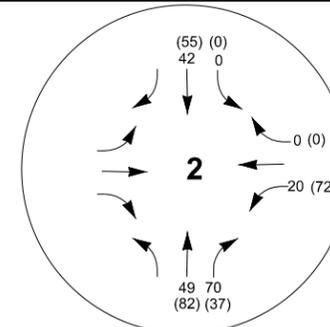
2027 With Project Volumes (Stage 1, 2 & 3)
Harvey Ranch Estates



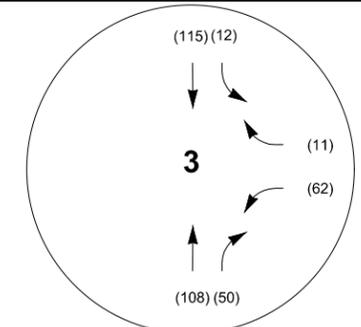
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



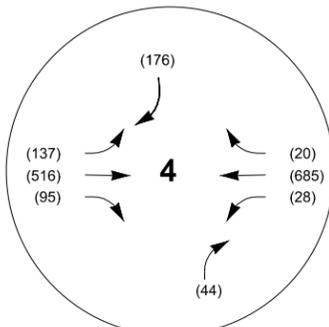
Lower Waitsburg Road /
Northern Subdivision Access



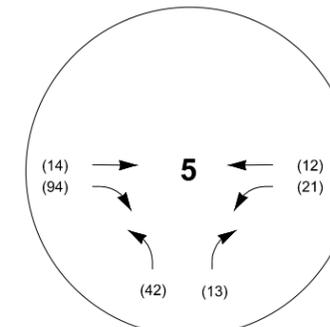
Lower Waitsburg Road /
Southern Subdivision Access



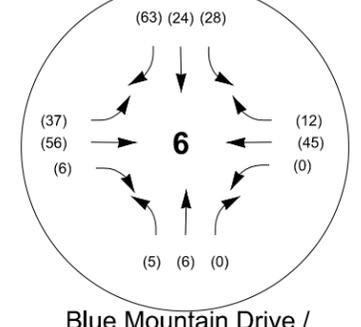
Lower Waitsburg Road /
Middle Waitsburg Road



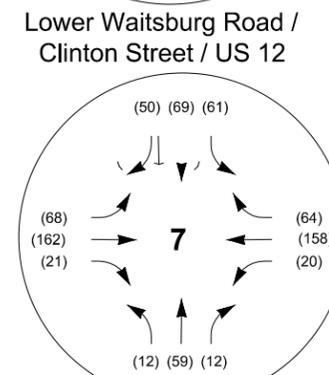
Lower Waitsburg Road /
Clinton Street / US 12



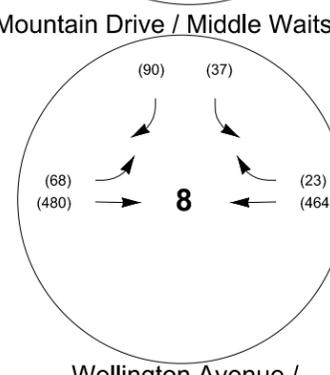
Blue Mountain Drive / Middle Waitsburg Road



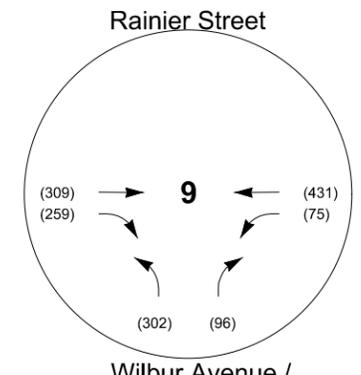
Blue Mountain Drive /
Rainier Street



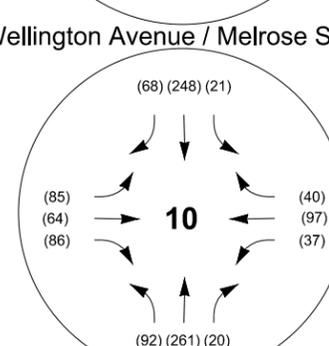
Wellington Avenue /
Melrose Street



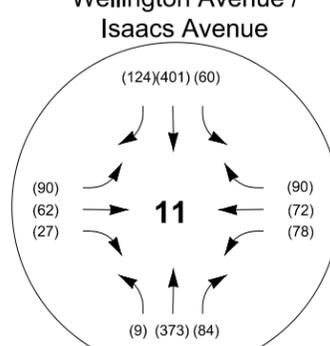
Wellington Avenue /
Isaacs Avenue



Wilbur Avenue /
US 12



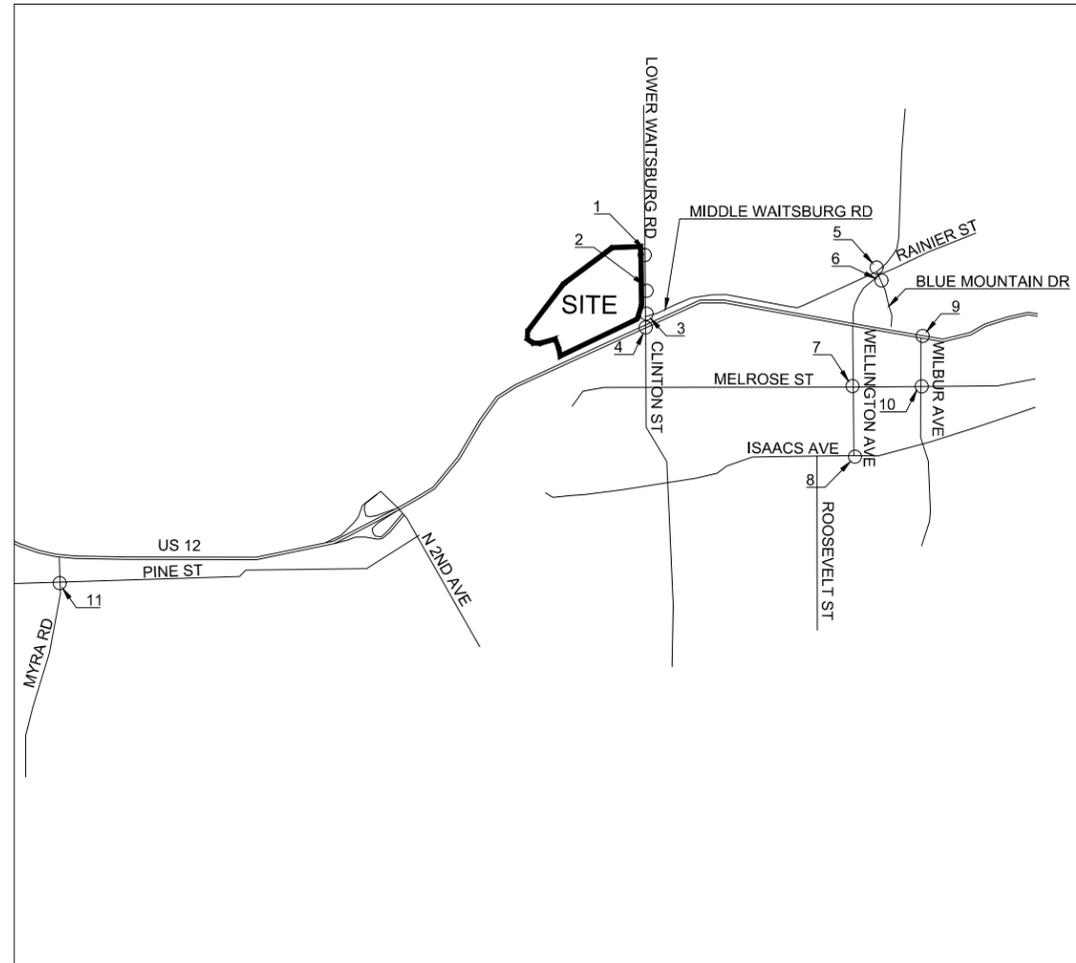
Wilbur Avenue /
Melrose Street



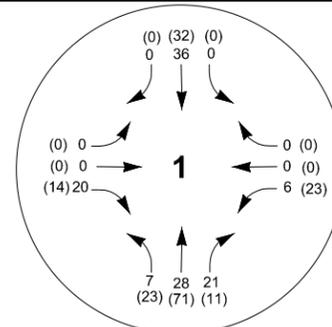
Myra Road / Hertiage Road /
Pine Street

FIGURE 15

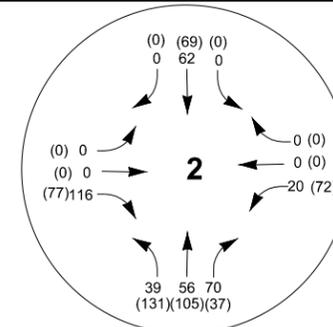
2037 Without Project Volumes Harvey Ranch Estates



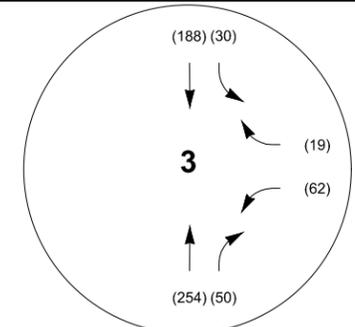
LEGEND	
○	INTERSECTION
XXX	AM PEAK HOUR
(XXX)	PM PEAK HOUR



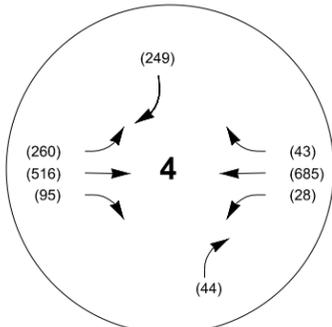
Lower Waitsburg Road /
Northern Subdivision Access



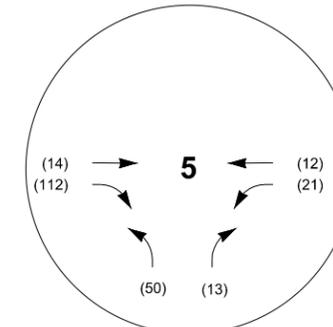
Lower Waitsburg Road /
Southern Subdivision Access



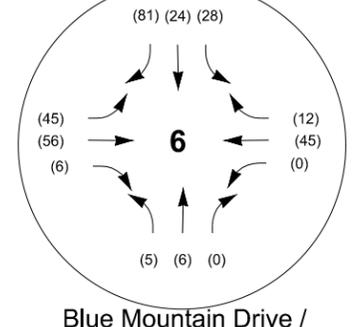
Lower Waitsburg Road /
Middle Waitsburg Road



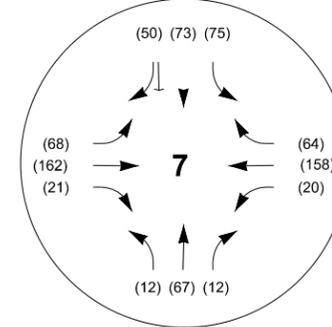
Lower Waitsburg Road /
Clinton Street / US 12



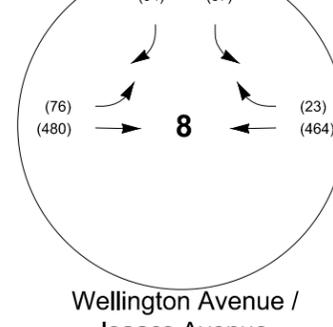
Blue Mountain Drive / Middle Waitsburg Road



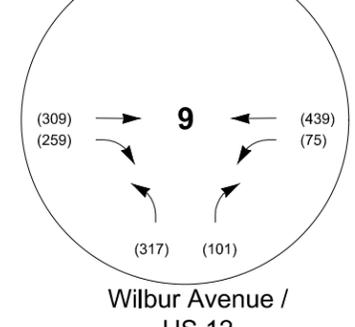
Blue Mountain Drive /
Rainier Street



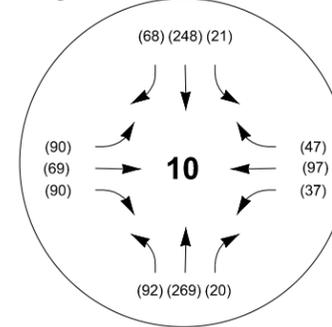
Wellington Avenue / Melrose Street



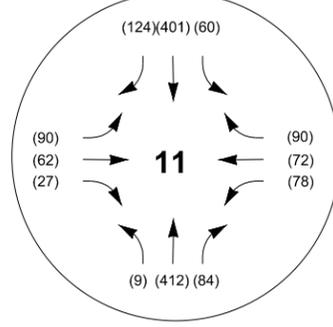
Wellington Avenue /
Isaacs Avenue



Wilbur Avenue /
US 12



Wilbur Avenue /
Melrose Street



Myra Road / Heritage Road /
Pine Street

FIGURE 16

2037 With Project Volumes (Stage 1, 2 & 3) Harvey Ranch Estates

Appendix A

Traffic Counts

PBS Engineering + Environmental
 5 N Colville Street
 Walla Walla , Washington, 99362
 509.956.3026

Turn Count Summary

Location: Lower WR at Middle WR, Walla Walla, WA
GPS Coordinates: Lat=46.082016, Lon=-118.324643
Date: 2020-04-08
Day of week: Wednesday
Weather: Sunny
Analyst: TAB

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	1	1	0	6	0	0	0	4	4	0	0	0	16
07:15	0	4	0	11	0	1	0	3	5	0	0	0	24
07:30	2	7	0	11	0	0	0	7	4	0	0	0	31
07:45	2	5	0	14	0	1	0	2	2	0	0	0	26
08:00	2	1	0	9	0	0	0	4	3	0	0	0	19
08:15	1	3	0	4	0	0	0	5	3	0	0	0	16
08:30	0	3	0	3	0	2	0	2	1	0	0	0	11
08:45	3	2	0	4	0	0	0	7	6	0	0	0	22

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	1	1	0	6	0	0	0	4	4	0	0	0	16
07:15	0	4	0	11	0	1	0	3	4	0	0	0	23
07:30	2	7	0	11	0	0	0	7	4	0	0	0	31
07:45	2	5	0	14	0	1	0	1	2	0	0	0	25
08:00	2	1	0	9	0	0	0	3	3	0	0	0	18
08:15	1	3	0	3	0	0	0	2	3	0	0	0	12
08:30	0	2	0	2	0	2	0	2	1	0	0	0	9
08:45	3	2	0	4	0	0	0	5	5	0	0	0	19

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	1	0	0	0	1
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	1	0	0	0	0	1
08:00	0	0	0	0	0	0	0	1	0	0	0	0	1
08:15	0	0	0	0	0	0	0	3	0	0	0	0	3
08:30	0	1	0	1	0	0	0	0	0	0	0	0	2
08:45	0	0	0	0	0	0	0	2	1	0	0	0	3

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:00	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15	0	0	0	1	0	0	0	0	0	0	0	0	1
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
07:00	0	0	0	0	0	0	0	0	0	2	0	2	2
07:15	0	0	0	0	0	0	0	0	0	2	0	2	2
07:30	0	0	0	0	0	0	1	0	1	0	0	0	1
07:45	0	0	0	0	1	1	0	2	2	1	0	1	4
08:00	0	0	0	0	0	0	0	2	2	0	0	0	2
08:15	0	0	0	0	0	0	0	0	0	1	0	1	1
08:30	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45	0	0	0	0	0	0	0	1	1	0	0	0	1

Intersection Peak Hour

07:15 - 08:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	6	17	0	45	0	2	0	16	14	0	0	0	100
Factor	0.75	0.61	0.00	0.80	0.00	0.50	0.00	0.57	0.70	0.00	0.00	0.00	0.81
Approach Factor	0.64			0.78			0.68			0.00			

Peak Hour Vehicle Summary

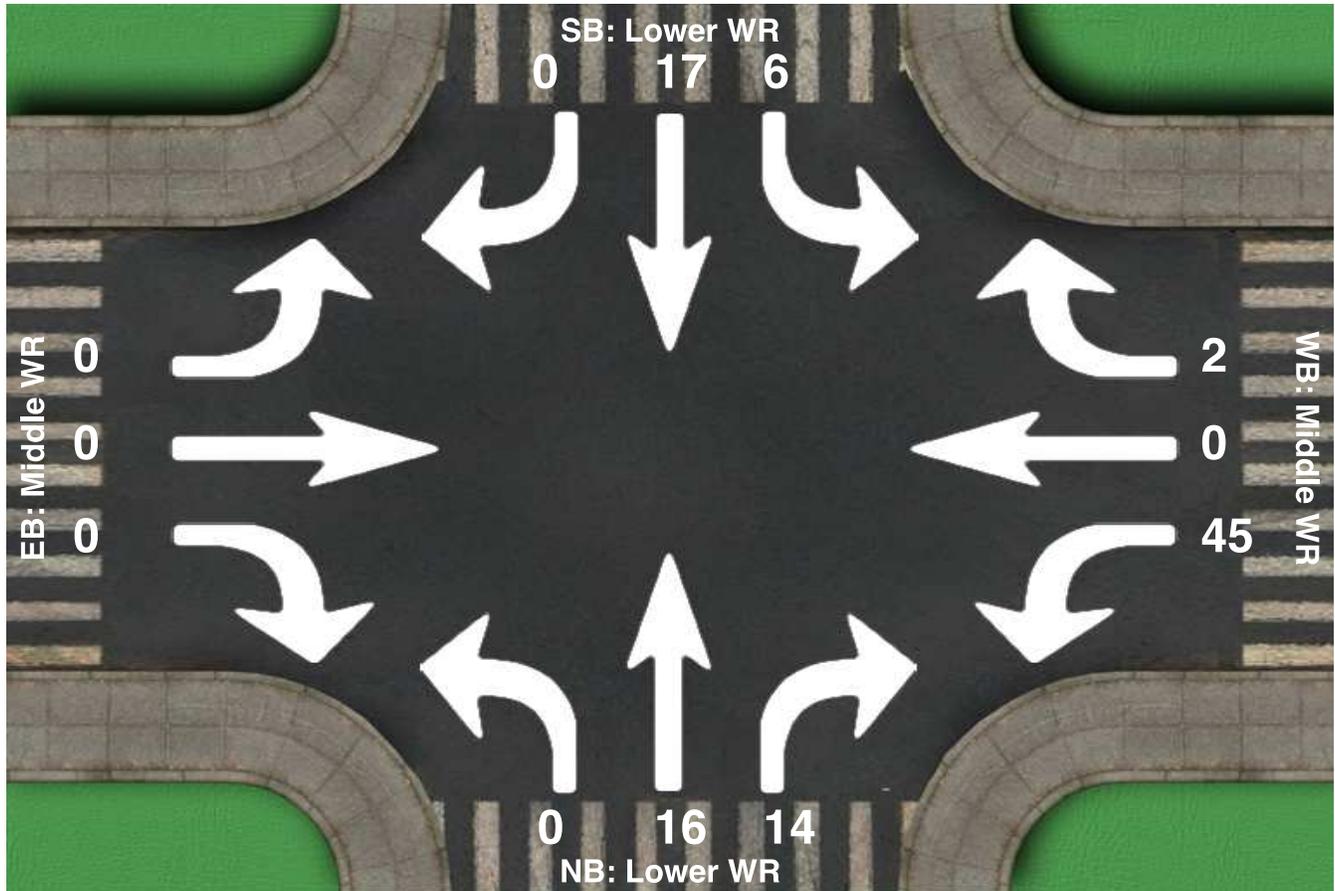
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	6	17	0	45	0	2	0	14	13	0	0	0	97
Truck	0	0	0	0	0	0	0	2	1	0	0	0	3
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	0	0	0	0	1	1	1	4	5	3	0	3	9

Intersection Peak Hour

Location: Lower WR at Middle WR, Walla Walla, WA
GPS Coordinates: Lat=46.082016, Lon=-118.324643
Date: 2020-04-08
Day of week: Wednesday
Weather: Sunny
Analyst: TAB



Intersection Peak Hour

07:15 - 08:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	6	17	0	45	0	2	0	16	14	0	0	0	100
Factor	0.75	0.61	0.00	0.80	0.00	0.50	0.00	0.57	0.70	0.00	0.00	0.00	0.81
Approach Factor	0.64			0.78			0.68			0.00			

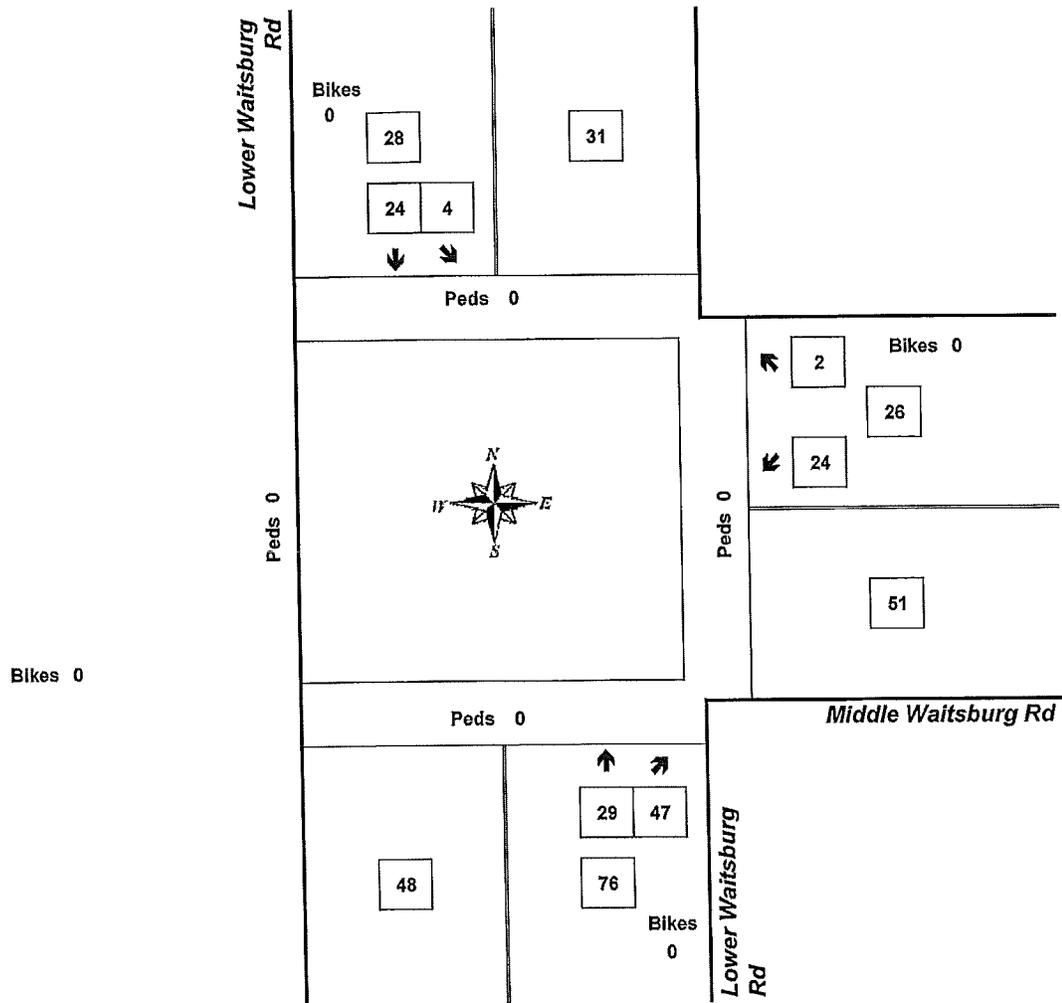
Peak Hour Summary



Clay Carnay
(503) 833-2740

Lower Waitsburg Rd & Middle Waitsburg Rd

4:45 PM to 5:45 PM
Thursday, September 25, 2014

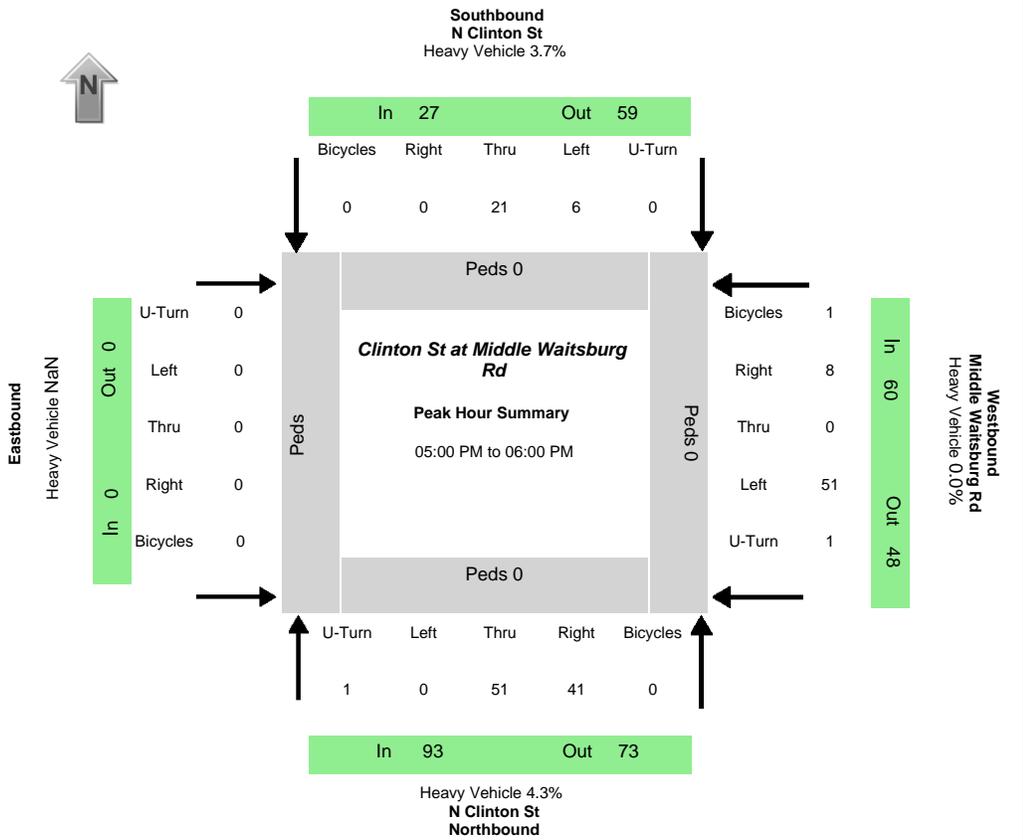


Approach	PHF	HV%	Volume
EB	0.00	0.0%	0
WB	0.72	0.0%	26
NB	0.73	0.0%	76
SB	0.88	7.1%	28
Intersection	0.93	1.5%	130

Count Period: 4:00 PM to 6:00 PM

Data Provided by K-D-N.com 503-594-4224

N/S street	N Clinton St
E/W street	Middle Waitsburg Rd
City, State	Walla Walla WA
Site Notes	
Location	46.082341 - -118.325609
Start Date	Tuesday, October 16, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	05:00:00 PM
Peak 15 Min Start	05:20:00 PM
PHF (15-Min Int)	0.92



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	51	41	1	6	21	0	0	0	0	0	0	51	0	8	1	93	27	0	60	73	59	0	48
Percent Heavy Vehicles																							
0.0%	3.9%	4.9%	0.0%	16.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	3.7%	NaN	0.0%	0.0%	3.4%	NaN	6.3%

PHV - Bicycles												PHV - Pedestrians									
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0

Time	Northbound N Clinton St				Southbound N Clinton St				Eastbound				Westbound Middle Waitsburg Rd				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM		1	4	0	0	3	0	0					4	0	0			
04:05:00 PM		3	6	0	0	2	0	0					5	0	0			
04:10:00 PM		4	6	0	0	4	0	0					2	0	0	44		
04:15:00 PM		1	1	0	2	2	0	0					2	0	0	40		
04:20:00 PM		5	3	0	0	2	0	0					7	1	0	42		
04:25:00 PM		2	1	0	2	3	0	0					1	0	0	35		
04:30:00 PM		2	3	0	3	1	0	0					2	0	0	38		
04:35:00 PM		2	5	0	1	1	0	0					3	1	0	33		
04:40:00 PM		3	6	0	2	0	0	0					2	0	0	37		
04:45:00 PM		2	2	0	2	1	0	0					1	0	0	34		
04:50:00 PM		4	6	0	1	1	0	0					3	0	0	36		
04:55:00 PM		1	5	0	0	0	0	0					6	0	0	35	151	
05:00:00 PM		7	4	0	0	3	0	0					3	2	0	46	158	
05:05:00 PM		2	6	0	0	1	0	0					7	0	0	47	158	
05:10:00 PM		3	2	0	0	1	0	0					4	1	0	46	153	
05:15:00 PM		5	2	0	0	0	0	0					2	0	0	36	154	
05:20:00 PM		7	4	0	2	1	0	0					4	0	0	38	154	
05:25:00 PM		4	3	0	1	1	0	0					1	2	0	39	157	
05:30:00 PM		5	4	0	0	4	0	0					6	0	0	49	165	
05:35:00 PM		3	3	0	3	2	0	0					1	2	0	45	166	
05:40:00 PM		4	5	1	0	2	0	0					3	1	0	49	169	
05:45:00 PM		5	4	0	0	0	0	0					3	0	1	43	174	
05:50:00 PM		3	2	0	0	2	0	0					10	0	0	46	176	
05:55:00 PM		3	2	0	0	4	0	0					7	0	0	46	180	

PBS Engineering + Environmental
 5 N Colville Street
 Walla Walla , Washington, 99362
 509.956.3026

Turn Count Summary

Location: Lower Waitsburg at Middle Waitsburg, Walla Walla, WA
GPS Coordinates: Lat=46.082142, Lon=-118.325103
Date: 2020-03-31
Day of week: Tuesday
Weather: Cloudy
Analyst: TAB

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:59	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	5	5	0	6	0	2	0	9	7	0	0	0	34
16:15	3	3	0	7	0	1	0	9	11	0	0	0	34
16:30	3	6	0	4	0	0	0	7	15	0	0	0	35
16:45	3	3	0	9	0	3	0	8	14	0	0	0	40
17:00	1	6	0	9	0	0	0	8	10	0	0	0	34
17:15	3	2	0	16	0	0	0	6	14	0	0	0	41
17:30	1	2	0	6	0	3	0	6	3	0	0	0	21
17:45	0	3	0	7	0	0	0	3	12	0	0	0	25

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:59	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	5	4	0	6	0	2	0	9	7	0	0	0	33
16:15	3	3	0	7	0	1	0	9	10	0	0	0	33
16:30	3	6	0	4	0	0	0	7	14	0	0	0	34
16:45	3	2	0	9	0	3	0	8	14	0	0	0	39
17:00	1	5	0	9	0	0	0	8	10	0	0	0	33
17:15	3	2	0	16	0	0	0	6	14	0	0	0	41
17:30	1	2	0	6	0	3	0	6	3	0	0	0	21
17:45	0	3	0	7	0	0	0	3	12	0	0	0	25

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:59	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	1	0	0	0	0	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	1	0	0	0	1
16:30	0	0	0	0	0	0	0	0	1	0	0	0	1
16:45	0	1	0	0	0	0	0	0	0	0	0	0	1
17:00	0	1	0	0	0	0	0	0	0	0	0	0	1
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:59	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0
17:30	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
15:59	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	4	0	4	4
16:15	0	0	0	0	0	0	0	3	3	1	0	1	4
16:30	0	0	0	0	0	0	0	1	1	0	0	0	1
16:45	0	0	0	0	0	0	0	0	0	1	0	1	1
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	2	0	2	0	1	1	0	0	0	3
17:30	0	0	0	0	0	0	0	1	1	0	0	0	1
17:45	2	0	2	0	0	0	0	0	0	1	0	1	3

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	10	17	0	38	0	3	0	29	53	0	0	0	150
Factor	0.83	0.71	0.00	0.59	0.00	0.25	0.00	0.91	0.88	0.00	0.00	0.00	0.91
Approach Factor	0.75			0.64			0.93			0.00			

Peak Hour Vehicle Summary

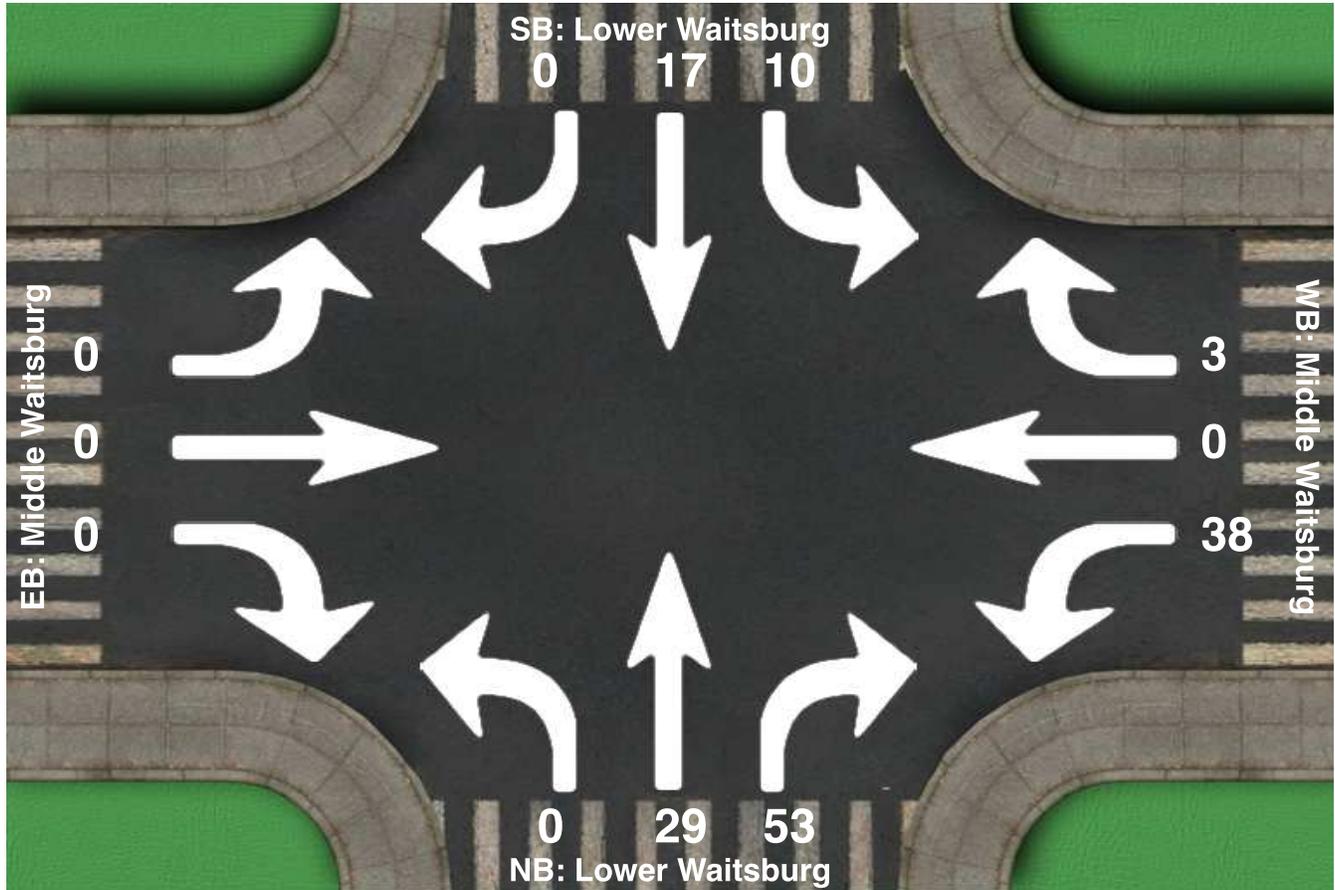
Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	10	15	0	38	0	3	0	29	52	0	0	0	147
Truck	0	2	0	0	0	0	0	0	1	0	0	0	3
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	0	0	0	2	0	2	0	2	2	1	0	1	5

Intersection Peak Hour

Location: Lower Waitsburg at Middle Waitsburg, Walla Walla, WA
GPS Coordinates: Lat=46.082142, Lon=-118.325103
Date: 2020-03-31
Day of week: Tuesday
Weather: Cloudy
Analyst: TAB



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	10	17	0	38	0	3	0	29	53	0	0	0	150
Factor	0.83	0.71	0.00	0.59	0.00	0.25	0.00	0.91	0.88	0.00	0.00	0.00	0.91
Approach Factor	0.75			0.64			0.93			0.00			

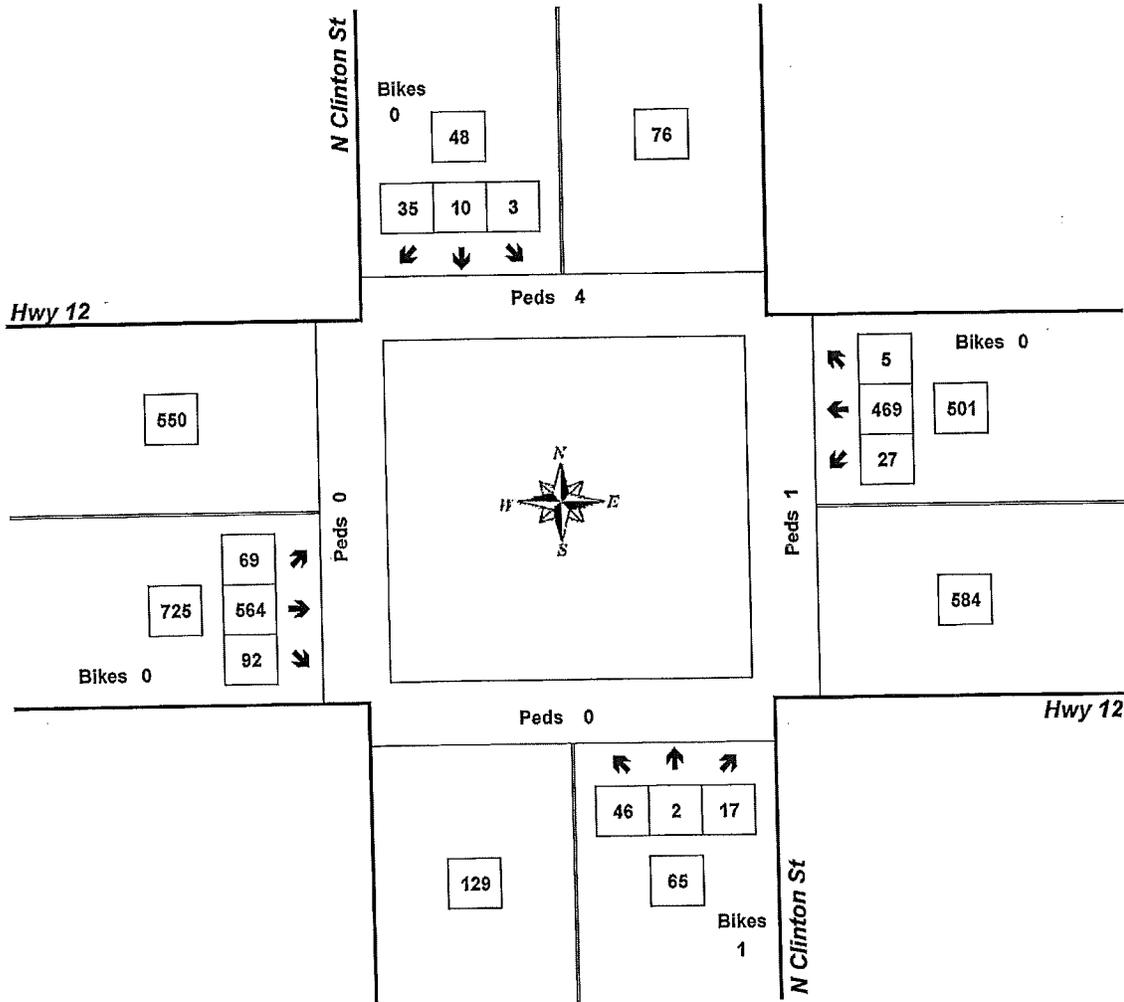
Peak Hour Summary



Clay Carney
(503) 833-2740

N Clinton St & Hwy 12

4:45 PM to 5:45 PM
Thursday, September 25, 2014

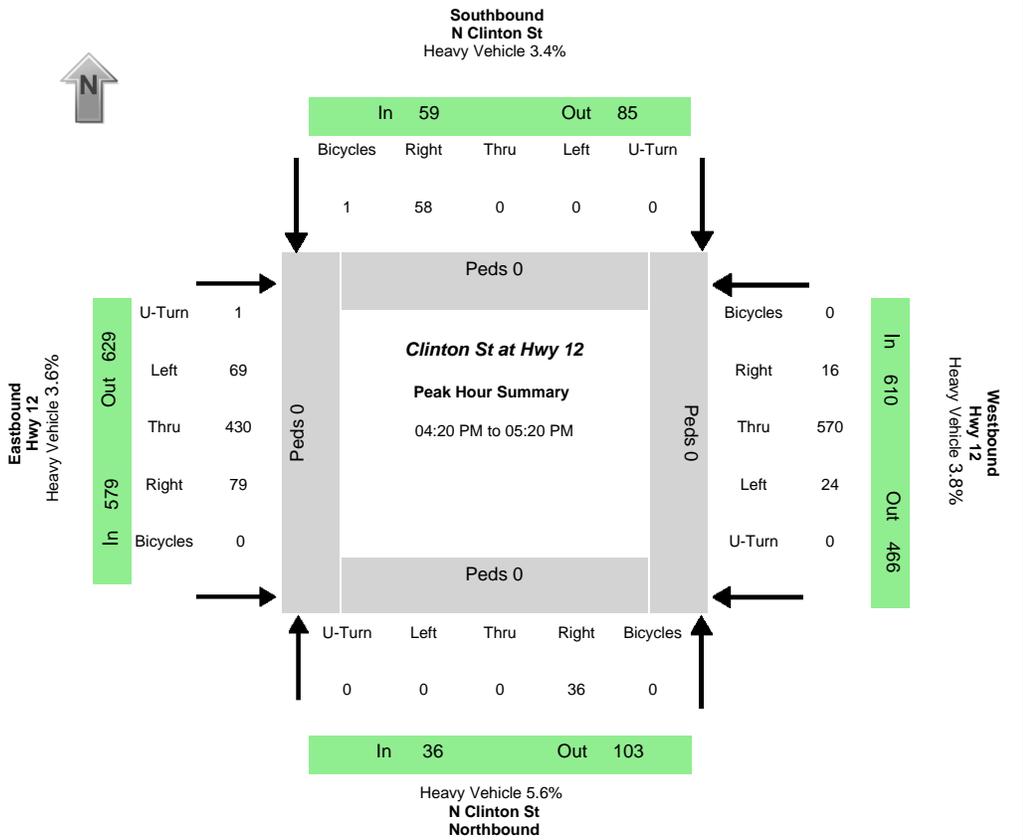


Approach	PHF	HV%	Volume
EB	0.88	4.1%	725
WB	0.80	5.0%	501
NB	0.77	0.0%	65
SB	0.67	4.2%	48
Intersection	0.86	4.3%	1,339

Count Period: 4:00 PM to 6:00 PM

Data Provided by K-D-N.com 503-594-4224

N/S street	N Clinton St
E/W street	Hwy 12
City, State	Walla Walla WA
Site Notes	
Location	46.081791 - -118.325559
Start Date	Tuesday, October 16, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:20:00 PM
Peak 15 Min Start	05:00:00 PM
PHF (15-Min Int)	0.88



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
0	0	36	0	0	0	58	0	69	430	79	1	24	570	16	0	36	58	579	610	103	85	629	466
Percent Heavy Vehicles																							
0.0%	0.0%	5.6%	0.0%	0.0%	0.0%	3.4%	0.0%	4.3%	4.2%	0.0%	0.0%	0.0%	3.7%	12.5%	0.0%	5.6%	3.4%	3.6%	3.8%	0.0%	5.9%	3.7%	4.3%

PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0

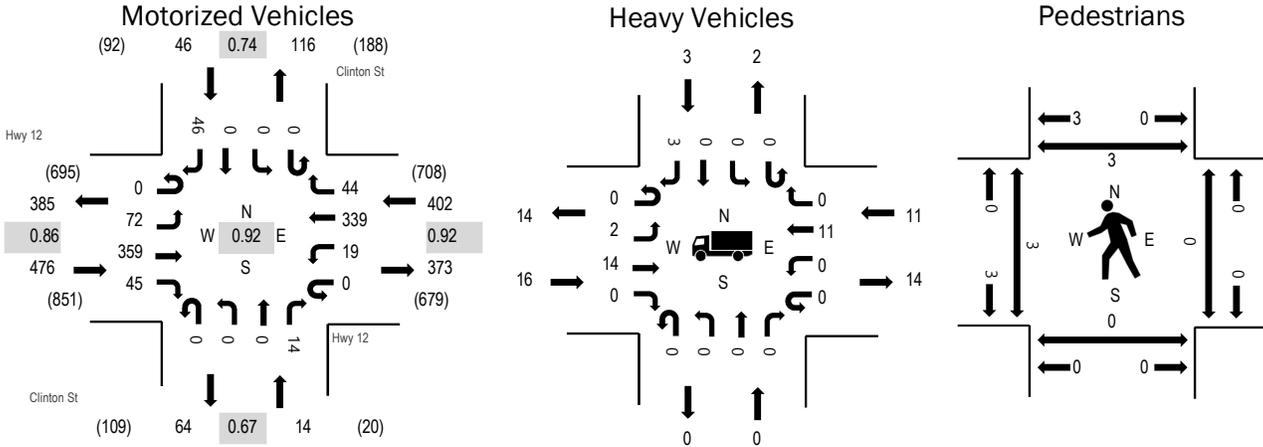
Time	Northbound N Clinton St				Southbound N Clinton St				Eastbound Hwy 12				Westbound Hwy 12				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	0	0	1	0	0	0	7	0	3	38	11	0	1	44	1	0		
04:05:00 PM	0	0	3	0	0	0	7	0	7	33	4	0	3	35	2	0		
04:10:00 PM	0	0	2	0	0	0	6	0	9	45	3	0	2	45	1	0	313	
04:15:00 PM	0	0	2	0	0	0	3	0	2	36	4	0	1	28	0	0	283	
04:20:00 PM	0	0	4	0	0	0	9	0	6	43	6	0	4	43	2	0	306	
04:25:00 PM	0	0	9	0	0	0	5	0	3	36	4	0	0	43	0	0	293	
04:30:00 PM	0	0	3	0	0	0	1	0	5	37	4	0	2	51	1	0	321	
04:35:00 PM	0	0	3	0	0	0	6	0	7	34	5	0	1	40	1	0	301	
04:40:00 PM	0	0	0	0	0	0	3	0	7	33	8	0	2	63	1	0	318	
04:45:00 PM	0	0	2	0	0	0	1	0	5	25	8	0	4	43	0	0	302	
04:50:00 PM	0	0	1	0	0	0	5	0	8	34	9	0	1	42	2	0	307	
04:55:00 PM	0	0	1	0	0	0	6	0	5	26	8	1	0	46	0	0	283	1207
05:00:00 PM	0	0	1	0	0	0	6	0	10	46	2	0	3	51	1	0	315	1221
05:05:00 PM	0	0	8	0	0	0	6	0	5	34	10	0	3	60	3	0	342	1256
05:10:00 PM	0	0	1	0	0	0	8	0	5	54	7	0	2	39	1	0	366	1260
05:15:00 PM	0	0	3	0	0	0	2	0	3	28	8	0	2	49	4	0	345	1283
05:20:00 PM	0	0	2	0	0	0	5	0	5	34	6	0	3	41	5	0	317	1267
05:25:00 PM	0	0	0	0	0	0	2	0	6	40	8	0	1	34	0	0	291	1258
05:30:00 PM	0	0	2	0	0	0	8	0	9	26	3	1	6	44	0	0	291	1253
05:35:00 PM	0	0	4	0	0	0	4	0	6	35	4	0	4	54	1	0	302	1268
05:40:00 PM	0	0	6	0	0	0	5	0	8	35	5	0	2	39	1	0	312	1252
05:45:00 PM	0	0	2	0	0	0	4	0	10	36	9	0	0	38	1	0	313	1264
05:50:00 PM	0	0	2	0	0	0	12	0	3	34	8	0	1	40	1	0	302	1263
05:55:00 PM	0	0	3	0	0	0	11	0	4	26	2	0	0	38	1	0	286	1255



(303) 216-2439
www.alltrafficdata.net

Location: Clinton St & Hwy 12 PM
Date: Tuesday, March 31, 2020
Peak Hour: 04:10 PM - 05:10 PM
Peak 15-Minutes: 04:40 PM - 04:55 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	3.4%	0.86
WB	2.7%	0.92
NB	0.0%	0.67
SB	6.5%	0.74
All	3.2%	0.92

Traffic Counts - Motorized Vehicles

Interval Start Time	Hwy 12 Eastbound				Hwy 12 Westbound				Clinton St Northbound				Clinton St Southbound				Total	Rolling Hour	
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			
4:00 PM	0	3	31	1	0	0	18	1	0	0	0	0	0	0	0	0	7	61	904
4:05 PM	0	5	25	4	0	2	24	1	0	0	0	0	0	0	0	0	2	63	908
4:10 PM	0	6	34	1	0	1	32	1	0	0	0	0	0	0	0	0	2	77	938
4:15 PM	0	1	24	4	0	2	20	1	0	0	0	2	0	0	0	0	3	57	931
4:20 PM	0	13	37	2	0	0	31	3	0	0	0	1	0	0	0	0	5	92	935
4:25 PM	0	3	32	0	0	1	33	5	0	0	0	1	0	0	0	0	2	77	905
4:30 PM	0	6	26	3	0	4	26	2	0	0	0	1	0	0	0	0	4	72	887
4:35 PM	0	7	27	4	0	3	27	8	0	0	0	1	0	0	0	0	2	79	882
4:40 PM	0	6	39	6	0	3	22	9	0	0	0	1	0	0	0	0	3	89	859
4:45 PM	0	4	28	5	0	0	27	5	0	0	0	2	0	0	0	0	6	77	826
4:50 PM	0	9	36	6	0	1	30	5	0	0	0	0	0	0	0	0	1	88	807
4:55 PM	0	7	24	6	0	2	28	1	0	0	0	1	0	0	0	0	3	72	774
5:00 PM	0	5	22	3	0	2	27	2	0	0	0	0	0	0	0	0	4	65	767
5:05 PM	0	5	30	5	0	0	36	2	0	0	0	4	0	0	0	0	11	93	
5:10 PM	0	3	34	5	0	0	24	2	0	0	0	1	0	0	0	0	1	70	
5:15 PM	0	5	22	3	0	1	22	3	0	0	0	1	0	0	0	0	4	61	
5:20 PM	0	4	20	2	0	1	25	2	0	0	0	1	0	0	0	0	7	62	
5:25 PM	0	4	23	3	0	0	17	3	0	0	0	3	0	0	0	0	6	59	
5:30 PM	0	2	36	1	0	2	22	1	0	0	0	0	0	0	0	0	3	67	
5:35 PM	0	1	21	2	0	1	23	4	0	0	0	0	0	0	0	0	4	56	
5:40 PM	0	4	23	2	0	1	22	2	0	0	0	0	0	0	0	0	2	56	
5:45 PM	0	6	18	1	0	2	24	5	0	0	0	0	0	0	0	0	2	58	
5:50 PM	0	2	21	3	0	2	20	3	0	0	0	0	0	0	0	0	4	55	
5:55 PM	0	4	26	5	0	1	23	2	0	0	0	0	0	0	0	0	4	65	
Count Total	0	115	659	77	0	32	603	73	0	0	0	20	0	0	0	0	92	1,671	
Peak Hour	0	72	359	45	0	19	339	44	0	0	0	14	0	0	0	0	46	938	

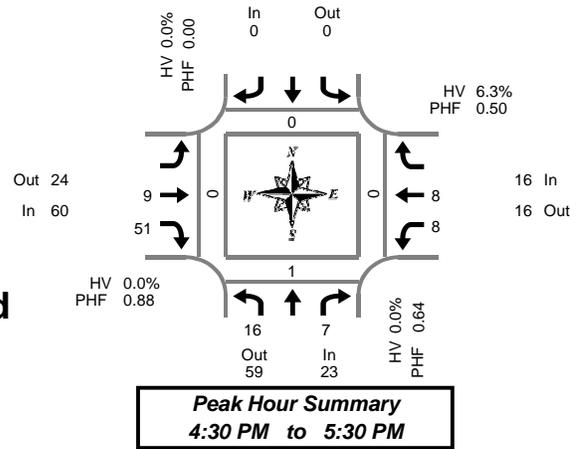
Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	1	0	2	0	3	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	0	1	0	1	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	2	2
4:10 PM	1	0	1	1	3	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0	4:15 PM	0	0	0	0	0
4:20 PM	3	0	0	0	3	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	2	2
4:25 PM	1	0	1	0	2	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	2	0	2	0	4	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	1	0	1	0	2	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	1	0	2	0	3	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	1	0	1	1	3	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	2	0	2	0	4	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	1	0	0	0	1	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	1	1
5:00 PM	1	0	1	0	2	5:00 PM	0	0	0	0	0	5:00 PM	3	0	0	0	3
5:05 PM	2	0	0	1	3	5:05 PM	0	0	0	0	0	5:05 PM	0	0	0	0	0
5:10 PM	1	0	0	0	1	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	1	0	1	0	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	1	1
5:20 PM	0	0	3	0	3	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	3	0	1	0	4	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	1	0	1	0	2	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	2	0	1	0	3	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	2	0	1	0	3	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	1	1
Count Total	27	0	22	3	52	Count Total	0	0	0	0	0	Count Total	3	0	0	7	10
Peak Hour	16	0	11	3	30	Peak Hour	0	0	0	0	0	Peak Hour	3	0	0	3	6

Total Vehicle Summary



Clay Carney
(503) 833-2740



Blue Mountain Dr & Middle Waitsburg Rd

Wednesday, March 01, 2017
4:00 PM to 6:00 PM

Peak Hour Summary
4:30 PM to 5:30 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Blue Mountain Dr				Southbound Blue Mountain Dr				Eastbound Middle Waitsburg Rd			Westbound Middle Waitsburg Rd			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes				Bikes		T	R	Bikes	L	T	Bikes		North	South	East	West
4:00 PM	9	2	0				0		4	9	0	1	0	0	0	0	0	0	0
4:15 PM	1	1	0				0		1	6	0	3	3	0	0	0	0	0	0
4:30 PM	4	0	0				0		2	10	0	2	6	0	0	0	0	0	0
4:45 PM	5	4	0				0		4	13	0	3	0	0	0	0	0	0	0
5:00 PM	3	2	0				0		0	16	0	3	0	0	0	0	0	0	0
5:15 PM	4	1	0				0		3	12	0	0	2	0	0	1	0	0	0
5:30 PM	5	1	0				0		2	11	0	1	1	0	0	0	0	0	0
5:45 PM	5	2	0				0		3	11	0	0	1	0	0	0	0	0	0
Total Survey	36	13	0				0		19	88	0	13	13	0	0	1	0	0	0

Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound Blue Mountain Dr				Southbound Blue Mountain Dr				Eastbound Middle Waitsburg Rd				Westbound Middle Waitsburg Rd				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	23	59	82	0	0	0	0	0	60	24	84	0	16	16	32	0	0	1	0	0	0
%HV	0.0%				0.0%				0.0%				6.3%				1.0%				
PHF	0.64				0.00				0.88				0.50				0.85				

By Movement	Northbound Blue Mountain Dr				Southbound Blue Mountain Dr				Eastbound Middle Waitsburg Rd			Westbound Middle Waitsburg Rd			Total	
	L	R	Total	Bikes				Total	T	R	Total	L	T	Total		
Volume	16	7	23	0	NA	NA	NA	0	9	51	60	8	8	16	99	
%HV	0.0%	NA	0.0%	0.0%	NA	NA	NA	0.0%	NA	0.0%	0.0%	0.0%	12.5%	NA	6.3%	1.0%
PHF	0.80	0.44	0.64	0.64				0.00	0.56	0.80	0.88	0.67	0.33	0.50	0.85	

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Blue Mountain Dr				Southbound Blue Mountain Dr				Eastbound Middle Waitsburg Rd			Westbound Middle Waitsburg Rd			Interval Total	Pedestrians Crosswalk			
	L	R	Bikes				Bikes		T	R	Bikes	L	T	Bikes		North	South	East	West
4:00 PM	19	7	0				0		11	38	0	9	9	0	0	0	0	0	0
4:15 PM	13	7	0				0		7	45	0	11	9	0	0	0	0	0	0
4:30 PM	16	7	0				0		9	51	0	8	8	0	0	1	0	0	0
4:45 PM	17	8	0				0		9	52	0	7	3	0	0	1	0	0	0
5:00 PM	17	6	0				0		8	50	0	4	4	0	0	1	0	0	0

Peak Hour Summary



Clay Carney
(503) 833-2740

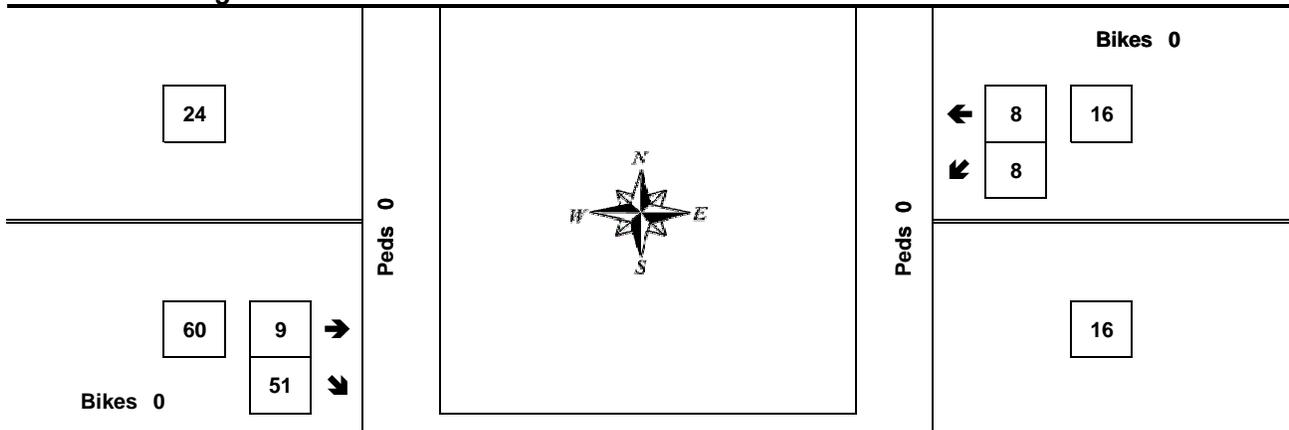
Blue Mountain Dr & Middle Waitsburg Rd

4:30 PM to 5:30 PM
Wednesday, March 01, 2017

Bikes
0

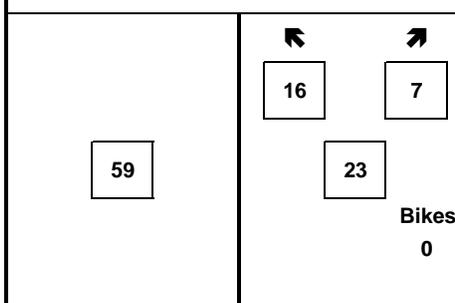
Middle Waitsburg Rd

Peds 0



Peds 1

Middle Waitsburg Rd



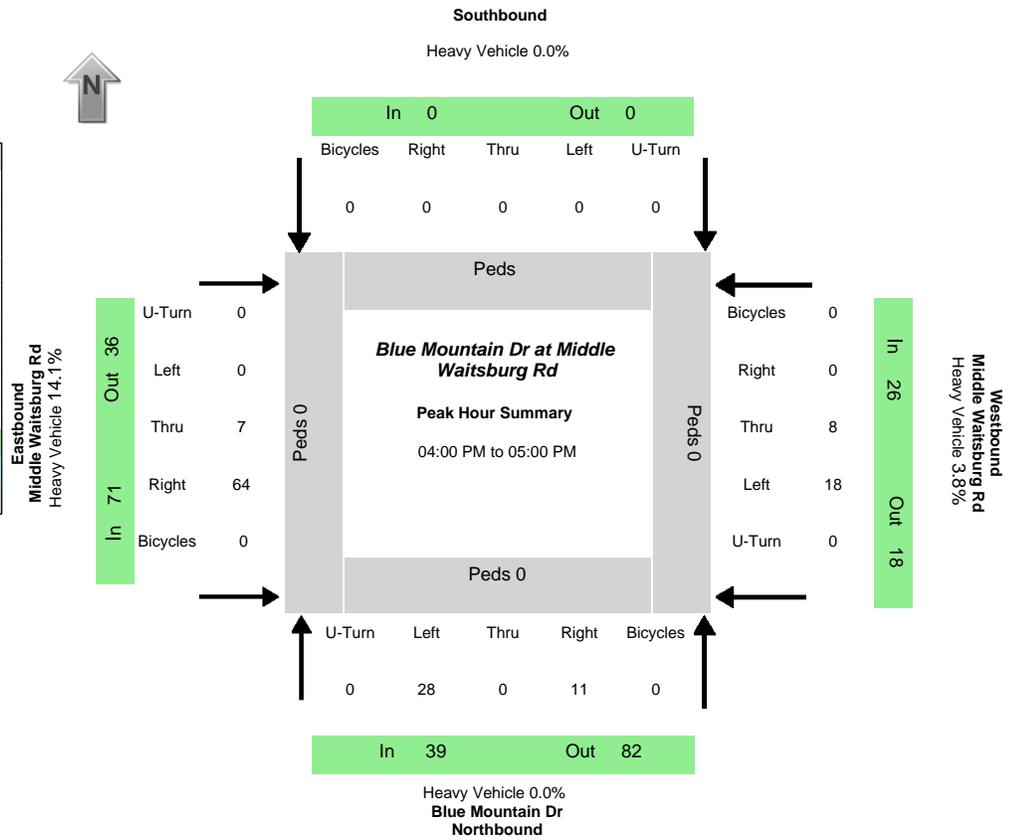
Approach	PHF	HV%	Volume
EB	0.88	0.0%	60
WB	0.50	6.3%	16
NB	0.64	0.0%	23
SB	0.00	0.0%	0
Intersection	0.85	1.0%	99

Count Period: 4:00 PM to 6:00 PM



KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	Blue Mountain Dr
E/W street	Middle Waitsburg Rd
City, State	Walla Walla WA
Site Notes	
Location	46.084663 - -118.307968
Start Date	Tuesday, October 16, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:00:00 PM
Peak 15 Min Start	04:45:00 PM
PHF (15-Min Int)	0.89



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
28	0	11	0	0	0	0	0	0	7	64	0	18	8	0	0	39	0	71	26	82	0	36	18
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	15.6%	0.0%	0.0%	12.5%	0.0%	0.0%	0.0%	0.0%	14.1%	3.8%	12.2%	0.0%	2.8%	0.0%

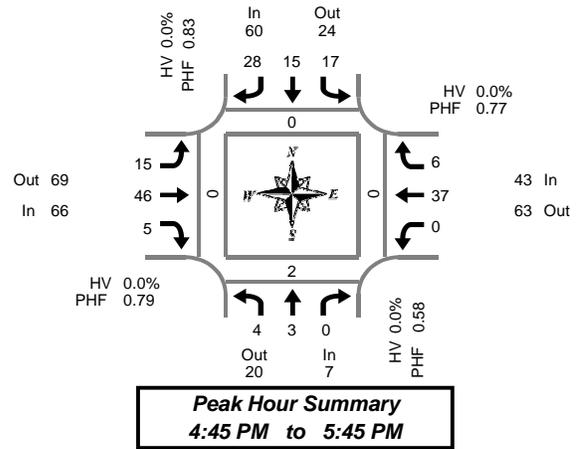
PHV- Bicycles												PHV - Pedestrians									
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0		0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time	All Vehicle Volumes																15 Min	1 HR	
	Northbound				Southbound				Eastbound				Westbound						
	Blue Mountain Dr				Middle Waitsburg Rd				Middle Waitsburg Rd				Middle Waitsburg Rd						
	Left	Thru	Right	Uturn	Sum	Sum													
04:00:00 PM	6		1	0						0	3	0		1	2		0		
04:05:00 PM	0		2	0						2	7	0		1	1		0		
04:10:00 PM	1		0	0						1	4	0		2	0		0	34	
04:15:00 PM	3		2	0						0	8	0		1	0		0	35	
04:20:00 PM	4		0	0						1	1	0		1	2		0	31	
04:25:00 PM	4		0	0						1	3	0		0	0		0	31	
04:30:00 PM	1		2	0						0	5	0		1	0		0	26	
04:35:00 PM	2		2	0						0	7	0		3	2		0	33	
04:40:00 PM	0		0	0						1	6	0		1	0		0	33	
04:45:00 PM	2		1	0						1	6	0		1	0		0	35	
04:50:00 PM	2		0	0						0	6	0		5	0		0	32	
04:55:00 PM	3		1	0						0	8	0		1	1		0	38	136
05:00:00 PM	5		0	0						1	4	0		0	0		0	37	133
05:05:00 PM	5		3	0						0	3	0		2	2		0	39	135
05:10:00 PM	2		0	0						1	4	0		0	2		0	34	136
05:15:00 PM	1		0	1						0	4	1		3	0		0	34	132
05:20:00 PM	4		1	0						0	2	0		0	1		0	27	131
05:25:00 PM	3		1	0						1	3	0		1	0		0	27	132
05:30:00 PM	4		0	0						1	2	0		1	1		0	26	132
05:35:00 PM	4		0	0						0	3	0		0	0		0	25	123
05:40:00 PM	2		1	0						0	3	0		0	0		0	22	121
05:45:00 PM	6		0	0						1	0	0		1	1		0	22	119
05:50:00 PM	2		1	0						1	1	0		0	2		0	22	113
05:55:00 PM	2		0	0						0	0	0		0	0		0	18	101

Total Vehicle Summary



Clay Carney
(503) 833-2740



Blue Mountain Dr & Rainier St

Wednesday, March 01, 2017
4:00 PM to 6:00 PM

15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Blue Mountain Dr				Southbound Blue Mountain Dr				Eastbound Rainier St				Westbound Rainier St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	0	0	0	0	2	2	6	0	5	4	2	0	0	8	6	0	35	0	0	0	0
4:15 PM	0	1	0	0	4	0	5	0	1	11	3	0	0	1	0	0	26	0	0	0	0
4:30 PM	0	1	0	0	3	2	7	0	4	5	2	0	0	9	0	0	33	0	0	0	0
4:45 PM	2	0	0	0	5	5	7	0	5	14	1	0	0	9	3	0	51	0	2	0	0
5:00 PM	0	0	0	0	7	1	10	0	5	14	2	0	0	6	0	0	45	0	0	0	0
5:15 PM	1	1	0	0	2	6	4	0	2	9	0	0	0	12	2	0	39	0	0	0	0
5:30 PM	1	2	0	0	3	3	7	0	3	9	2	0	0	10	1	0	41	0	0	0	0
5:45 PM	2	1	0	0	4	2	4	0	5	9	2	0	0	6	1	0	36	0	0	0	0
Total Survey	6	6	0	0	30	21	50	0	30	75	14	0	0	61	13	0	306	0	2	0	0

Peak Hour Summary 4:45 PM to 5:45 PM

By Approach	Northbound Blue Mountain Dr				Southbound Blue Mountain Dr				Eastbound Rainier St				Westbound Rainier St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	7	20	27	0	60	24	84	0	66	69	135	0	43	63	106	0	176	0	2	0	0
%HV	0.0%				0.0%				0.0%				0.0%				0.0%				
PHF	0.58				0.83				0.79				0.77				0.86				

By Movement	Northbound Blue Mountain Dr				Southbound Blue Mountain Dr				Eastbound Rainier St				Westbound Rainier St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	4	3	0	7	17	15	28	60	15	46	5	66	0	37	6	43	176
%HV	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
PHF	0.50	0.38	0.00	0.58	0.61	0.63	0.70	0.83	0.75	0.82	0.63	0.79	0.00	0.77	0.50	0.77	0.86

Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Blue Mountain Dr				Southbound Blue Mountain Dr				Eastbound Rainier St				Westbound Rainier St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	2	2	0	0	14	9	25	0	15	34	8	0	0	27	9	0	145	0	2	0	0
4:15 PM	2	2	0	0	19	8	29	0	15	44	8	0	0	25	3	0	155	0	2	0	0
4:30 PM	3	2	0	0	17	14	28	0	16	42	5	0	0	36	5	0	168	0	2	0	0
4:45 PM	4	3	0	0	17	15	28	0	15	46	5	0	0	37	6	0	176	0	2	0	0
5:00 PM	4	4	0	0	16	12	25	0	15	41	6	0	0	34	4	0	161	0	0	0	0

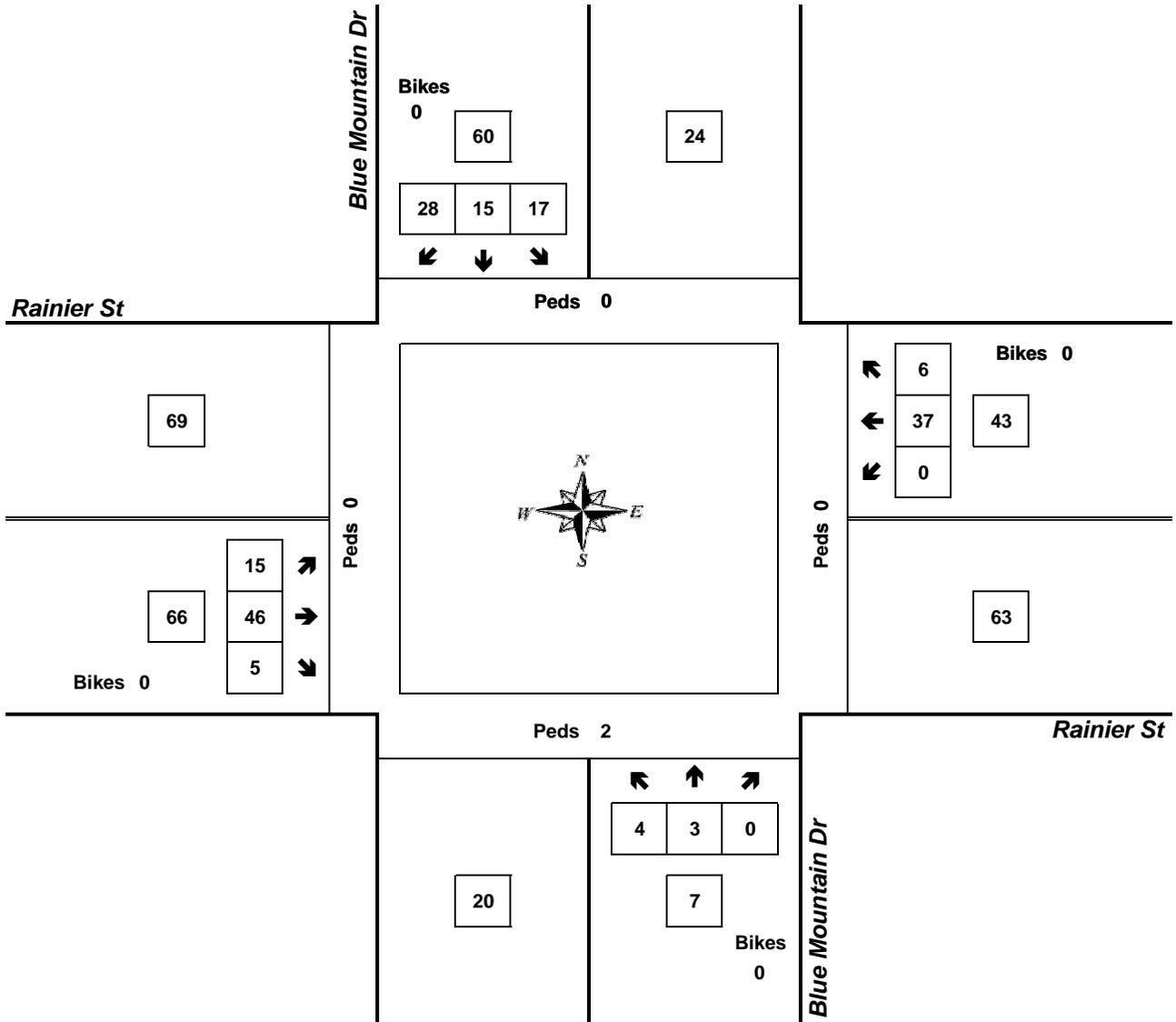
Peak Hour Summary



Clay Carney
(503) 833-2740

Blue Mountain Dr & Rainier St

4:45 PM to 5:45 PM
Wednesday, March 01, 2017



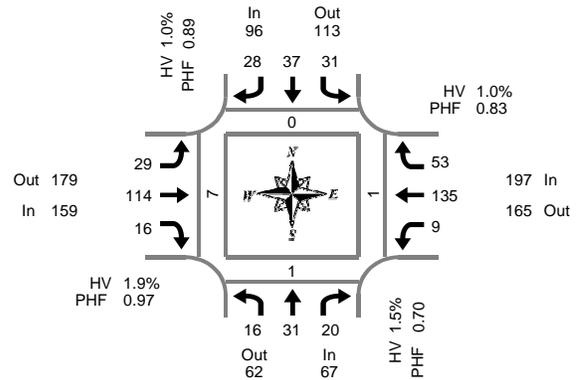
Approach	PHF	HV%	Volume
EB	0.79	0.0%	66
WB	0.77	0.0%	43
NB	0.58	0.0%	7
SB	0.83	0.0%	60
Intersection	0.86	0.0%	176

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Clay Carney
(503) 833-2740



Wellington Ave & Melrose St

Wednesday, March 01, 2017
4:00 PM to 6:00 PM

15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Melrose St				Westbound Melrose St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	5	9	6	0	4	5	7	0	3	25	2	0	1	32	9	0	108	2	0	0	1
4:15 PM	1	8	1	0	5	8	5	0	10	25	1	0	2	34	12	0	112	0	0	0	0
4:30 PM	1	5	3	0	5	11	3	0	4	27	1	0	2	40	12	0	114	0	0	0	0
4:45 PM	2	9	5	0	9	7	5	0	11	31	5	0	3	31	9	0	127	0	0	0	2
5:00 PM	2	12	10	0	2	9	10	0	8	28	4	1	3	38	18	0	144	0	1	0	2
5:15 PM	4	6	5	0	9	13	5	0	6	29	6	0	2	21	9	0	115	0	0	1	1
5:30 PM	4	4	1	0	12	8	6	0	10	26	4	0	2	33	16	0	126	0	0	0	0
5:45 PM	6	9	4	0	8	7	7	0	5	31	2	0	2	43	10	0	134	0	0	0	4
Total Survey	25	62	35	0	54	68	48	0	57	222	25	1	17	272	95	0	980	2	1	1	10

Peak Hour Summary 5:00 PM to 6:00 PM

By Approach	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Melrose St				Westbound Melrose St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	67	62	129	0	96	113	209	0	159	179	338	1	197	165	362	0	519	0	1	1	7
%HV	1.5%				1.0%				1.9%				1.0%				1.3%				
PHF	0.70				0.89				0.97				0.83				0.90				

By Movement	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Melrose St				Westbound Melrose St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	16	31	20	67	31	37	28	96	29	114	16	159	9	135	53	197	519
%HV	6.3%	0.0%	0.0%	1.5%	3.2%	0.0%	0.0%	1.0%	0.0%	1.8%	6.3%	1.9%	0.0%	0.0%	3.8%	1.0%	1.3%
PHF	0.67	0.65	0.50	0.70	0.65	0.71	0.70	0.89	0.73	0.92	0.67	0.97	0.75	0.78	0.74	0.83	0.90

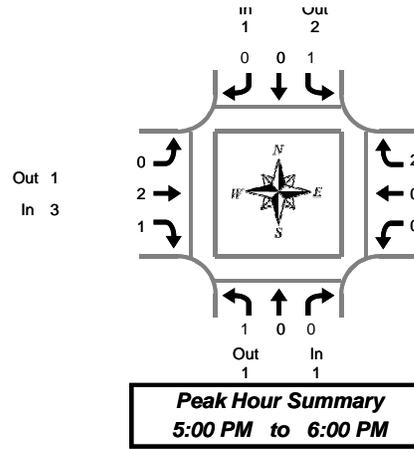
Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Melrose St				Westbound Melrose St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	9	31	15	0	23	31	20	0	28	108	9	0	8	137	42	0	461	2	0	0	3
4:15 PM	6	34	19	0	21	35	23	0	33	111	11	1	10	143	51	0	497	0	1	0	4
4:30 PM	9	32	23	0	25	40	23	0	29	115	16	1	10	130	48	0	500	0	1	1	5
4:45 PM	12	31	21	0	32	37	26	0	35	114	19	1	10	123	52	0	512	0	1	1	5
5:00 PM	16	31	20	0	31	37	28	0	29	114	16	1	9	135	53	0	519	0	1	1	7

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Wellington Ave & Melrose St

Wednesday, March 01, 2017
4:00 PM to 6:00 PM

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Melrose St				Westbound Melrose St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
5:15 PM	1	0	0	1	0	0	0	0	0	1	1	2	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	1	0	1	0	1	0	0	1	1	3
Total Survey	1	0	0	1	1	0	0	1	0	4	1	5	0	2	2	4	11

Heavy Vehicle Peak Hour Summary 5:00 PM to 6:00 PM

By Approach	Northbound Wellington Ave			Southbound Wellington Ave			Eastbound Melrose St			Westbound Melrose St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	1	1	2	1	2	3	3	1	4	2	3	5	7
PHF	0.25			0.25			0.25			0.25			0.29

By Movement	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Melrose St				Westbound Melrose St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	0	0	1	1	0	0	1	0	2	1	3	0	0	2	2	7
PHF	0.25	0.00	0.00	0.25	0.25	0.00	0.00	0.25	0.00	0.25	0.25	0.25	0.00	0.00	0.50	0.25	0.29

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Melrose St				Westbound Melrose St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	2	0	2	4
4:15 PM	0	0	0	0	0	0	0	0	0	2	0	2	0	1	1	2	4
4:30 PM	1	0	0	1	0	0	0	0	0	2	1	3	0	1	1	2	6
4:45 PM	1	0	0	1	0	0	0	0	0	2	1	3	0	0	1	1	5
5:00 PM	1	0	0	1	1	0	0	1	0	2	1	3	0	0	2	2	7

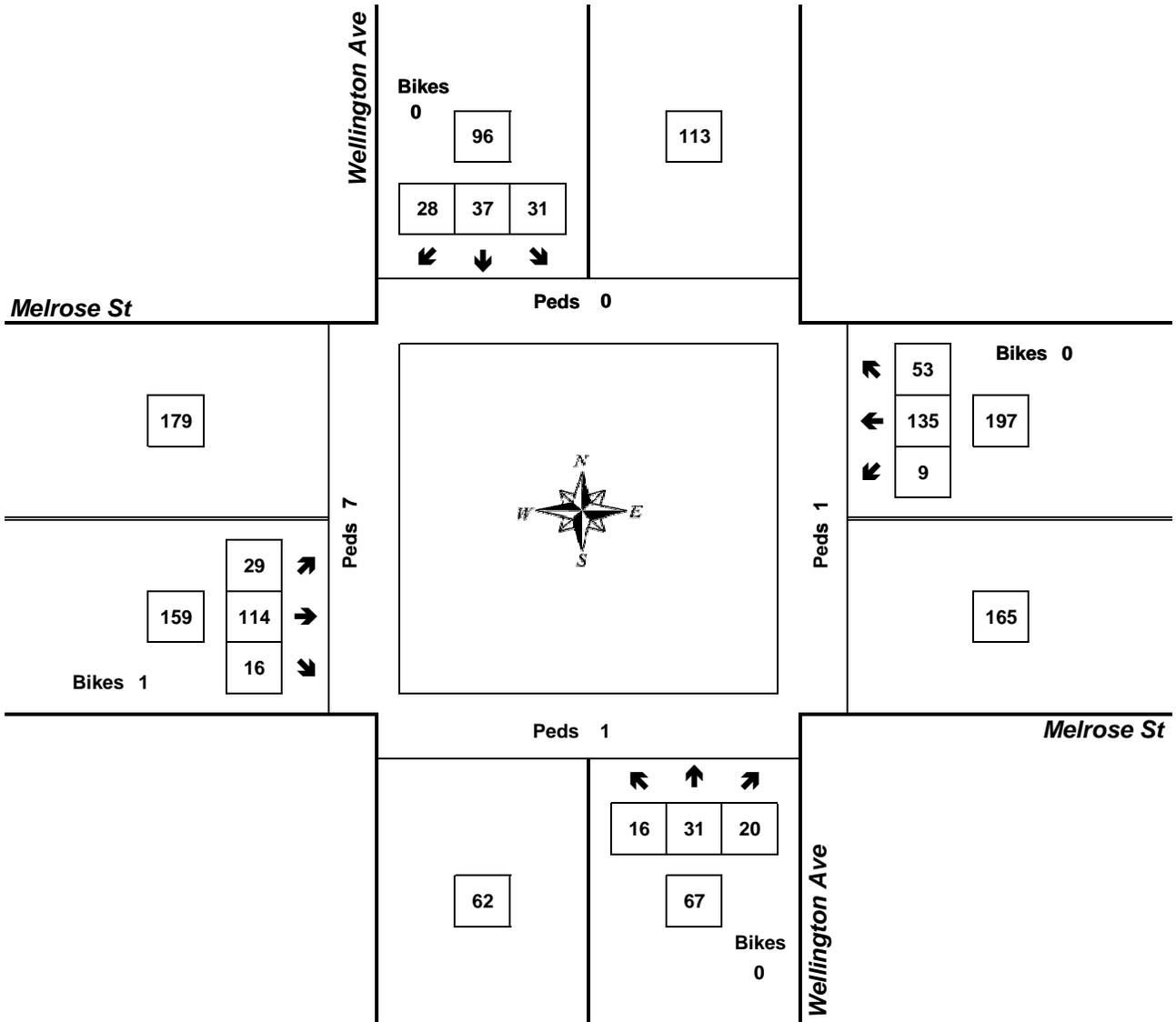
Peak Hour Summary



Clay Carney
(503) 833-2740

Wellington Ave & Melrose St

5:00 PM to 6:00 PM
Wednesday, March 01, 2017

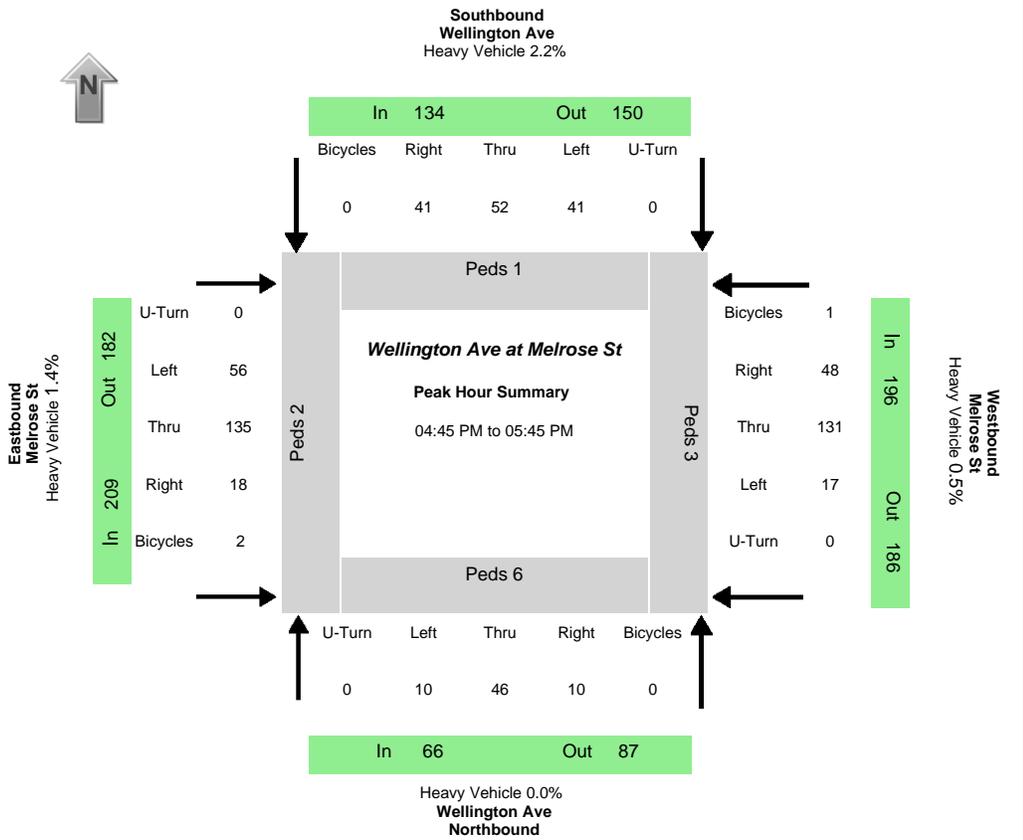


Approach	PHF	HV%	Volume
EB	0.97	1.9%	159
WB	0.83	1.0%	197
NB	0.70	1.5%	67
SB	0.89	1.0%	96
Intersection	0.90	1.3%	519

Count Period: 4:00 PM to 6:00 PM

Data Provided by K-D-N.com 503-594-4224

N/S street	Wellington Ave
E/W street	Melrose St
City, State	Walla Walla WA
Site Notes	
Location	46.078609 - -118.309711
Start Date	Tuesday, October 16, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:45:00 PM
Peak 15 Min Start	05:10:00 PM
PHF (15-Min Int)	0.92



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
10	46	10	0	41	52	41	0	56	135	18	0	17	131	48	0	66	134	209	196	87	150	182	186
Percent Heavy Vehicles																							
0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	4.9%	0.0%	0.0%	2.2%	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%	2.2%	1.4%	0.5%	1.1%	0.0%	1.6%	1.6%

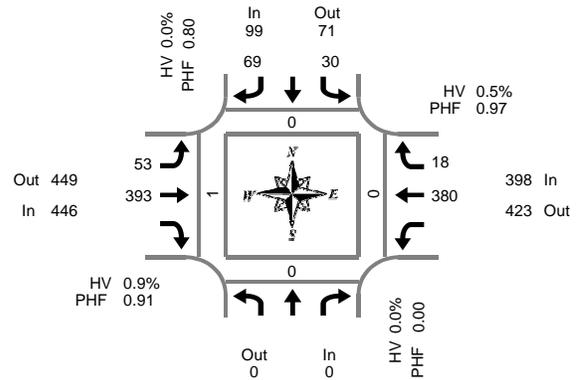
PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				in Crosswalk					
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3	6	1	2	3	12

Time	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Melrose St				Westbound Melrose St				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	2	2	0	0	2	3	5	0	6	11	3	0	4	4	6	0		
04:05:00 PM	1	3	3	0	6	1	4	0	3	5	0	0	1	11	1	0		
04:10:00 PM	2	5	2	0	6	4	1	0	3	10	3	0	0	11	2	0	136	
04:15:00 PM	1	2	0	0	3	4	2	0	11	10	0	0	1	12	6	0	140	
04:20:00 PM	0	1	2	0	5	1	3	0	1	5	1	0	0	7	10	0	137	
04:25:00 PM	2	4	3	0	2	1	2	0	4	9	1	0	0	13	6	0	135	
04:30:00 PM	1	2	2	0	4	4	1	0	6	11	0	0	0	8	4	0	126	
04:35:00 PM	0	2	1	0	4	3	4	0	0	8	0	0	0	8	3	0	123	
04:40:00 PM	0	2	2	0	4	5	0	0	1	8	1	0	2	7	5	0	113	
04:45:00 PM	0	5	2	0	5	4	8	0	5	10	0	0	1	9	2	0	121	
04:50:00 PM	1	5	1	0	4	7	3	0	2	9	2	0	4	12	4	0	142	
04:55:00 PM	1	6	1	0	2	3	2	0	2	12	2	0	2	12	5	0	155	539
05:00:00 PM	4	1	2	0	3	3	3	0	5	13	1	0	4	7	2	0	152	539
05:05:00 PM	1	2	0	0	6	0	2	0	6	6	0	0	0	9	8	0	138	540
05:10:00 PM	1	4	0	0	1	5	1	0	11	13	4	0	1	16	3	0	148	551
05:15:00 PM	0	2	1	0	2	9	4	0	4	7	2	0	1	10	3	0	145	544
05:20:00 PM	1	10	0	0	4	8	4	0	4	15	0	0	1	10	3	0	165	568
05:25:00 PM	1	6	1	0	3	5	8	0	3	15	1	0	1	11	5	0	165	581
05:30:00 PM	0	1	0	0	1	5	1	0	1	11	4	0	1	8	4	0	157	575
05:35:00 PM	0	1	1	0	6	1	2	0	9	12	0	0	0	14	6	0	149	594
05:40:00 PM	0	3	1	0	4	2	3	0	4	12	2	0	1	13	3	0	137	605
05:45:00 PM	2	7	2	0	3	3	3	0	3	4	3	0	1	14	1	0	146	600
05:50:00 PM	0	4	2	0	3	2	1	0	2	11	0	0	1	8	5	0	133	585
05:55:00 PM	3	3	1	0	4	3	2	0	4	5	1	0	1	10	4	0	126	576

Total Vehicle Summary



Clay Carney
(503) 833-2740



Wellington Ave & Isaacs Ave

Wednesday, March 01, 2017
4:00 PM to 6:00 PM

15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Isaacs Ave				Westbound Isaacs Ave				Interval Total	Pedestrians Crosswalk			
	Bikes	L	R	Bikes	L	T	Bikes	T	R	Bikes	T	R	Bikes	North	South	East		West			
4:00 PM	0	10	17	0	10	109	0	0	99	8	1	253	2	0	0	0					
4:15 PM	0	2	9	0	10	114	0	0	104	3	0	242	3	0	0	1					
4:30 PM	0	11	9	0	3	91	0	0	94	7	0	215	1	0	0	0					
4:45 PM	0	5	9	0	15	101	0	0	76	5	0	211	1	0	0	0					
5:00 PM	0	10	20	0	9	102	0	0	96	7	0	244	0	0	0	1					
5:15 PM	0	8	23	0	9	113	0	0	97	5	0	255	0	0	0	0					
5:30 PM	0	4	12	0	13	101	1	0	99	2	0	231	0	0	0	0					
5:45 PM	0	8	14	0	22	77	0	0	88	4	1	213	0	0	0	0					
Total Survey	0	58	113	0	91	808	1	0	753	41	2	1,864	7	0	0	2					

Peak Hour Summary 5:00 PM to 6:00 PM

By Approach	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Isaacs Ave				Westbound Isaacs Ave				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	0	0	0	0	99	71	170	0	446	449	895	1	398	423	821	1	943	0	0	0	1
%HV	0.0%				0.0%				0.9%				0.5%				0.6%				
PHF	0.00				0.80				0.91				0.97				0.92				

By Movement	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Isaacs Ave				Westbound Isaacs Ave				Total
	Total	L	R	Total	L	T	Total	L	T	Total	T	R	Total				
Volume	0	30	69	99	53	393	446	380	18	398	943						
%HV	NA	NA	NA	0.0%	0.0%	NA	0.0%	0.0%	0.0%	1.0%	NA	0.9%	0.5%	0.0%	0.5%	0.6%	
PHF	0.00	0.75	0.75	0.80	0.60	0.87	0.91	0.96	0.64	0.97	0.92						

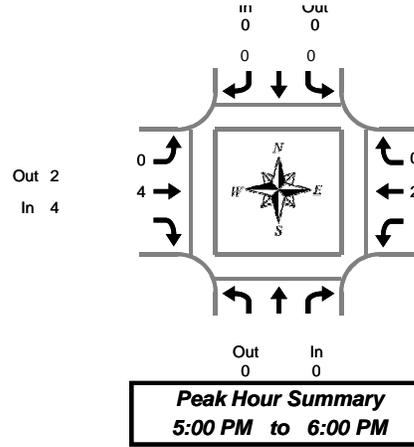
Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Wellington Ave				Southbound Wellington Ave				Eastbound Isaacs Ave				Westbound Isaacs Ave				Interval Total	Pedestrians Crosswalk			
	Bikes	L	R	Bikes	L	T	Bikes	T	R	Bikes	T	R	Bikes	North	South	East		West			
4:00 PM	0	28	44	0	38	415	0	0	373	23	1	921	7	0	0	1					
4:15 PM	0	28	47	0	37	408	0	0	370	22	0	912	5	0	0	2					
4:30 PM	0	34	61	0	36	407	0	0	363	24	0	925	2	0	0	1					
4:45 PM	0	27	64	0	46	417	1	0	368	19	0	941	1	0	0	1					
5:00 PM	0	30	69	0	53	393	1	0	380	18	1	943	0	0	0	1					

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Wellington Ave & Isaacs Ave

Wednesday, March 01, 2017
4:00 PM to 6:00 PM

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Wellington Ave			Southbound Wellington Ave			Eastbound Isaacs Ave			Westbound Isaacs Ave			Interval Total	
	Total	L	R	Total	L	R	Total	L	T	Total	T	R		Total
4:00 PM	0	0	0	0	0	0	0	3		3	2	0	2	5
4:15 PM	0	0	0	0	0	0	0	2		2	2	0	2	4
4:30 PM	0	0	0	0	0	0	0	2		2	1	0	1	3
4:45 PM	0	0	0	0	0	0	0	0		0	1	0	1	1
5:00 PM	0	0	0	0	0	0	0	2		2	1	0	1	3
5:15 PM	0	0	0	0	0	0	0	2		2	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0		0	1	0	1	1
5:45 PM	0	0	0	0	0	0	0	0		0	0	0	0	0
Total Survey	0	0	0	0	0	0	0	11		11	8	0	8	19

Heavy Vehicle Peak Hour Summary 5:00 PM to 6:00 PM

By Approach	Northbound Wellington Ave			Southbound Wellington Ave			Eastbound Isaacs Ave			Westbound Isaacs Ave			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	0	0	0	0	0	0	4	2	6	2	4	6	6
PHF	0.00			0.00			0.14			0.10			0.13

By Movement	Northbound Wellington Ave			Southbound Wellington Ave			Eastbound Isaacs Ave			Westbound Isaacs Ave			Total	
	Total	L	R	Total	L	R	Total	L	T	Total	T	R		Total
Volume	0	0	0	0	0	0	0	4		4	2	0	2	6
PHF	0.00	0.00		0.00	0.00		0.00	0.14		0.14	0.10	0.00	0.10	0.13

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Wellington Ave			Southbound Wellington Ave			Eastbound Isaacs Ave			Westbound Isaacs Ave			Interval Total	
	Total	L	R	Total	L	R	Total	L	T	Total	T	R		Total
4:00 PM	0	0	0	0	0	0	0	7		7	6	0	6	13
4:15 PM	0	0	0	0	0	0	0	6		6	5	0	5	11
4:30 PM	0	0	0	0	0	0	0	6		6	3	0	3	9
4:45 PM	0	0	0	0	0	0	0	4		4	3	0	3	7
5:00 PM	0	0	0	0	0	0	0	4		4	2	0	2	6

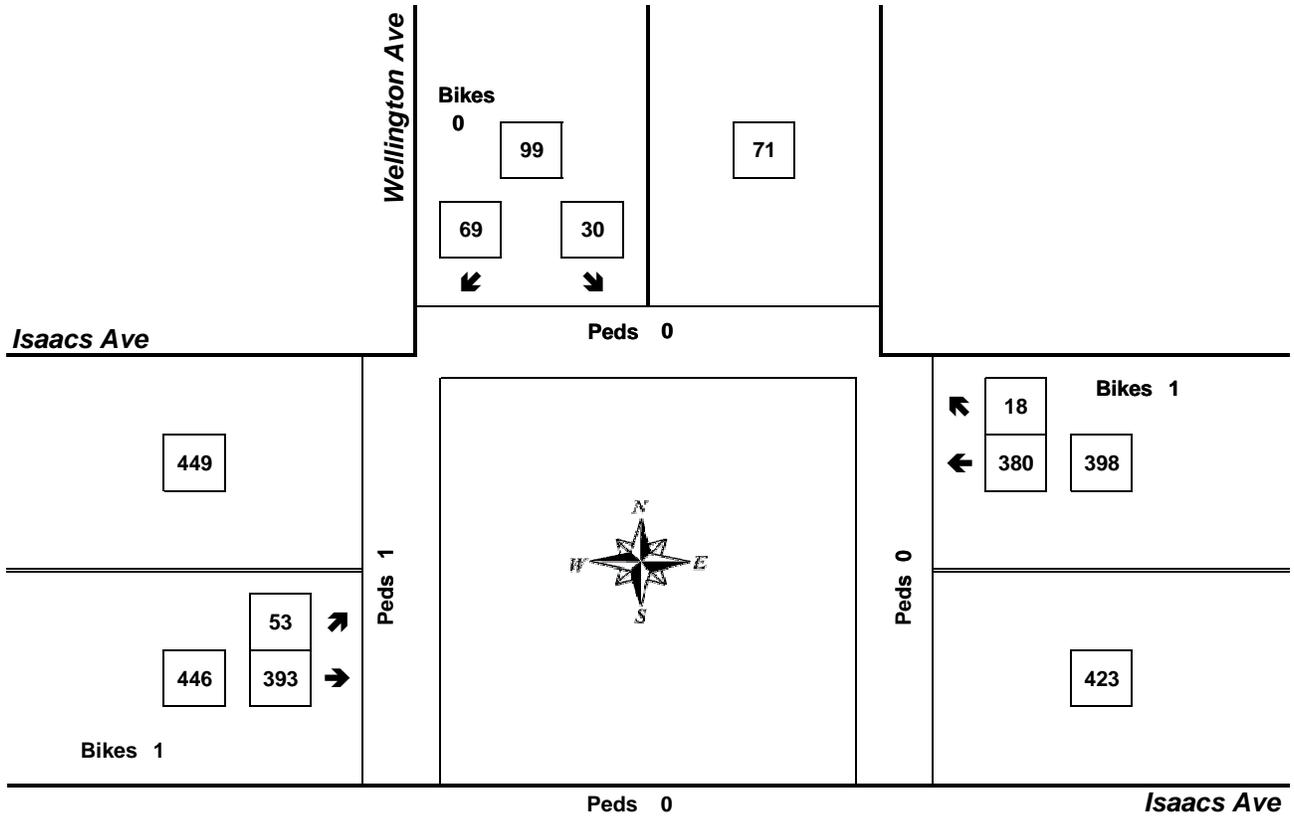
Peak Hour Summary



Clay Carney
(503) 833-2740

Wellington Ave & Isaacs Ave

5:00 PM to 6:00 PM
Wednesday, March 01, 2017



Bikes
0

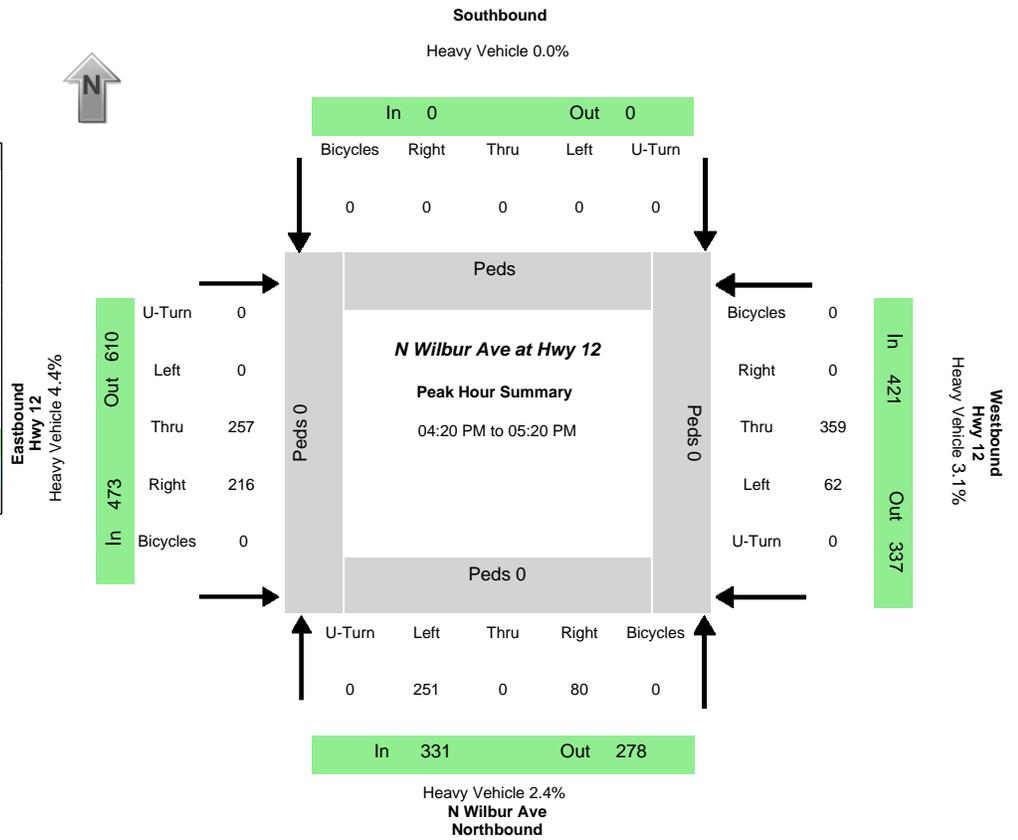
Approach	PHF	HV%	Volume
EB	0.91	0.9%	446
WB	0.97	0.5%	398
NB	0.00	0.0%	0
SB	0.80	0.0%	99
Intersection	0.92	0.6%	943

Count Period: 4:00 PM to 6:00 PM



KEY DATA NETWORK

Data Provided by K-D-N.com 503-594-4224	
N/S street	N Wilbur Ave
E/W street	Hwy 12
City, State	Walla Walla WA
Site Notes	
Location	46.081208 - -118.304581
Start Date	Tuesday, October 16, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:20:00 PM
Peak 15 Min Start	05:00:00 PM
PHF (15-Min Int)	0.91



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
251	0	80	0	0	0	0	0	0	257	216	0	62	359	0	0	331	0	473	421	278	0	610	337
Percent Heavy Vehicles																							
2.8%	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.8%	2.8%	0.0%	1.6%	3.3%	0.0%	0.0%	2.4%	0.0%	4.4%	3.1%	2.5%	0.0%	3.1%	4.7%

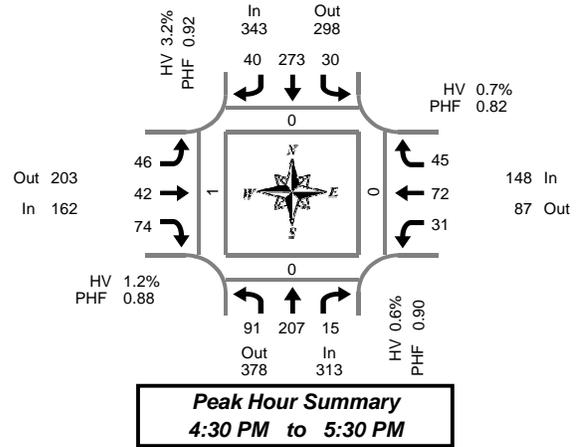
PHV- Bicycles										PHV- Pedestrians											
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		NB	SB	EB	WB	
0		0	0					0	0	0	0	0	0	0	0	0	0	0	0	0	0

Time	Northbound N Wilbur Ave				Southbound				Eastbound Hwy 12				Westbound Hwy 12				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	19		4	0					19	24	0	0	5	33		0		
04:05:00 PM	15		5	0					22	17	0	0	1	21		0		
04:10:00 PM	24		1	0					25	15	0	0	5	23		0		278
04:15:00 PM	15		8	0					22	21	0	0	6	21		0		267
04:20:00 PM	24		11	0					31	17	0	0	4	24		0		297
04:25:00 PM	18		9	0					16	18	0	0	4	19		0		288
04:30:00 PM	18		5	0					24	22	0	0	14	47		0		325
04:35:00 PM	15		2	0					19	18	0	0	5	26		0		299
04:40:00 PM	23		9	0					21	21	0	0	6	34		0		329
04:45:00 PM	20		8	0					14	8	0	0	2	28		0		279
04:50:00 PM	16		3	0					17	17	0	0	8	26		0		281
04:55:00 PM	30		4	0					9	16	0	0	4	22		0		252 1147
05:00:00 PM	23		12	0					19	28	0	0	4	33		0		291 1162
05:05:00 PM	20		7	0					25	20	0	0	3	43		0		322 1199
05:10:00 PM	13		3	0					30	17	0	0	4	33		0		337 1206
05:15:00 PM	31		7	0					32	14	0	0	4	24		0		330 1225
05:20:00 PM	20		3	0					14	17	0	0	5	23		0		294 1196
05:25:00 PM	17		8	0					19	21	0	0	1	19		0		279 1197
05:30:00 PM	22		6	0					15	13	0	0	7	31		0		261 1161
05:35:00 PM	34		6	0					22	19	0	0	3	28		0		291 1188
05:40:00 PM	22		6	0					23	13	0	0	5	15		0		290 1158
05:45:00 PM	18		3	0					23	20	0	0	3	18		0		281 1163
05:50:00 PM	19		4	0					17	20	0	0	3	24		0		256 1163
05:55:00 PM	13		7	0					14	14	0	0	3	23		0		246 1152

Total Vehicle Summary



Clay Carney
(503) 833-2740



Wilbur Ave & Melrose St

Wednesday, March 01, 2017
4:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound Wilbur Ave				Southbound Wilbur Ave				Eastbound Melrose St				Westbound Melrose St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	27	54	6	0	7	53	9	3	10	8	16	0	2	7	11	0	210	0	0	1	0
4:15 PM	21	46	3	0	8	67	9	0	12	14	17	0	1	11	4	0	213	0	0	0	0
4:30 PM	25	56	6	0	7	67	12	0	11	8	15	0	9	19	14	0	249	0	0	0	1
4:45 PM	25	54	2	0	8	57	9	0	8	11	17	0	7	11	10	0	219	0	0	0	0
5:00 PM	27	40	3	0	8	71	11	0	12	12	22	0	11	24	10	0	251	0	0	0	0
5:15 PM	14	57	4	0	7	78	8	0	15	11	20	1	4	18	11	0	247	0	0	0	0
5:30 PM	16	46	5	0	3	41	10	0	12	8	23	0	7	21	10	0	202	0	0	0	0
5:45 PM	41	43	2	0	5	52	14	0	14	10	21	0	2	10	4	0	218	0	0	0	0
Total Survey	196	396	31	0	53	486	82	3	94	82	151	1	43	121	74	0	1,809	0	0	1	1

Peak Hour Summary

4:30 PM to 5:30 PM

By Approach	Northbound Wilbur Ave				Southbound Wilbur Ave				Eastbound Melrose St				Westbound Melrose St				Total	Pedestrians Crosswalk			
	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes	In	Out	Total	Bikes		North	South	East	West
Volume	313	378	691	0	343	298	641	0	162	203	365	1	148	87	235	0	966	0	0	0	1
%HV	0.6%				3.2%				1.2%				0.7%				1.7%				
PHF	0.90				0.92				0.88				0.82				0.96				

By Movement	Northbound Wilbur Ave				Southbound Wilbur Ave				Eastbound Melrose St				Westbound Melrose St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	91	207	15	313	30	273	40	343	46	42	74	162	31	72	45	148	966
%HV	1.1%	0.5%	0.0%	0.6%	6.7%	2.2%	7.5%	3.2%	0.0%	0.0%	2.7%	1.2%	0.0%	1.4%	0.0%	0.7%	1.7%
PHF	0.84	0.91	0.63	0.90	0.94	0.88	0.83	0.92	0.77	0.88	0.84	0.88	0.70	0.75	0.80	0.82	0.96

Rolling Hour Summary

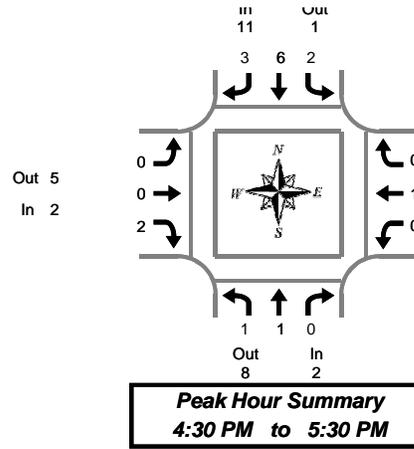
4:00 PM to 6:00 PM

Interval Start Time	Northbound Wilbur Ave				Southbound Wilbur Ave				Eastbound Melrose St				Westbound Melrose St				Interval Total	Pedestrians Crosswalk			
	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes	L	T	R	Bikes		North	South	East	West
4:00 PM	98	210	17	0	30	244	39	3	41	41	65	0	19	48	39	0	891	0	0	1	1
4:15 PM	98	196	14	0	31	262	41	0	43	45	71	0	28	65	38	0	932	0	0	0	1
4:30 PM	91	207	15	0	30	273	40	0	46	42	74	1	31	72	45	0	966	0	0	0	1
4:45 PM	82	197	14	0	26	247	38	0	47	42	82	1	29	74	41	0	919	0	0	0	0
5:00 PM	98	186	14	0	23	242	43	0	53	41	86	1	24	73	35	0	918	0	0	0	0

Heavy Vehicle Summary



Clay Carney
(503) 833-2740



Wilbur Ave & Melrose St

Wednesday, March 01, 2017
4:00 PM to 6:00 PM

Heavy Vehicle 15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Wilbur Ave				Southbound Wilbur Ave				Eastbound Melrose St				Westbound Melrose St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	1	0	1	1	2	0	3	0	0	2	2	0	1	0	1	7
4:15 PM	0	1	0	1	0	2	0	2	0	0	1	1	1	0	0	1	5
4:30 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	1	2
4:45 PM	0	0	0	0	0	1	0	1	0	0	1	1	0	0	0	0	2
5:00 PM	1	0	0	1	1	4	2	7	0	0	0	0	0	0	0	0	8
5:15 PM	0	1	0	1	1	1	0	2	0	0	1	1	0	0	0	0	4
5:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	2
5:45 PM	1	2	0	3	0	0	0	0	1	1	0	2	0	0	1	1	6
Total Survey	2	5	0	7	3	11	3	17	1	1	5	7	1	2	2	5	36

Heavy Vehicle Peak Hour Summary 4:30 PM to 5:30 PM

By Approach	Northbound Wilbur Ave			Southbound Wilbur Ave			Eastbound Melrose St			Westbound Melrose St			Total
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total	
Volume	2	8	10	11	1	12	2	5	7	1	2	3	16
PHF	0.13			0.28			0.17			0.08			0.29

By Movement	Northbound Wilbur Ave				Southbound Wilbur Ave				Eastbound Melrose St				Westbound Melrose St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	1	1	0	2	2	6	3	11	0	0	2	2	0	1	0	1	16
PHF	0.25	0.08	0.00	0.13	0.25	0.25	0.25	0.28	0.00	0.00	0.17	0.17	0.00	0.13	0.00	0.08	0.29

Heavy Vehicle Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound Wilbur Ave				Southbound Wilbur Ave				Eastbound Melrose St				Westbound Melrose St				Interval Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
4:00 PM	0	2	0	2	1	5	1	7	0	0	4	4	1	2	0	3	16
4:15 PM	1	1	0	2	1	7	3	11	0	0	2	2	1	1	0	2	17
4:30 PM	1	1	0	2	2	6	3	11	0	0	2	2	0	1	0	1	16
4:45 PM	1	1	0	2	2	7	2	11	0	0	2	2	0	0	1	1	16
5:00 PM	2	3	0	5	2	6	2	10	1	1	1	3	0	0	2	2	20

Peak Hour Summary

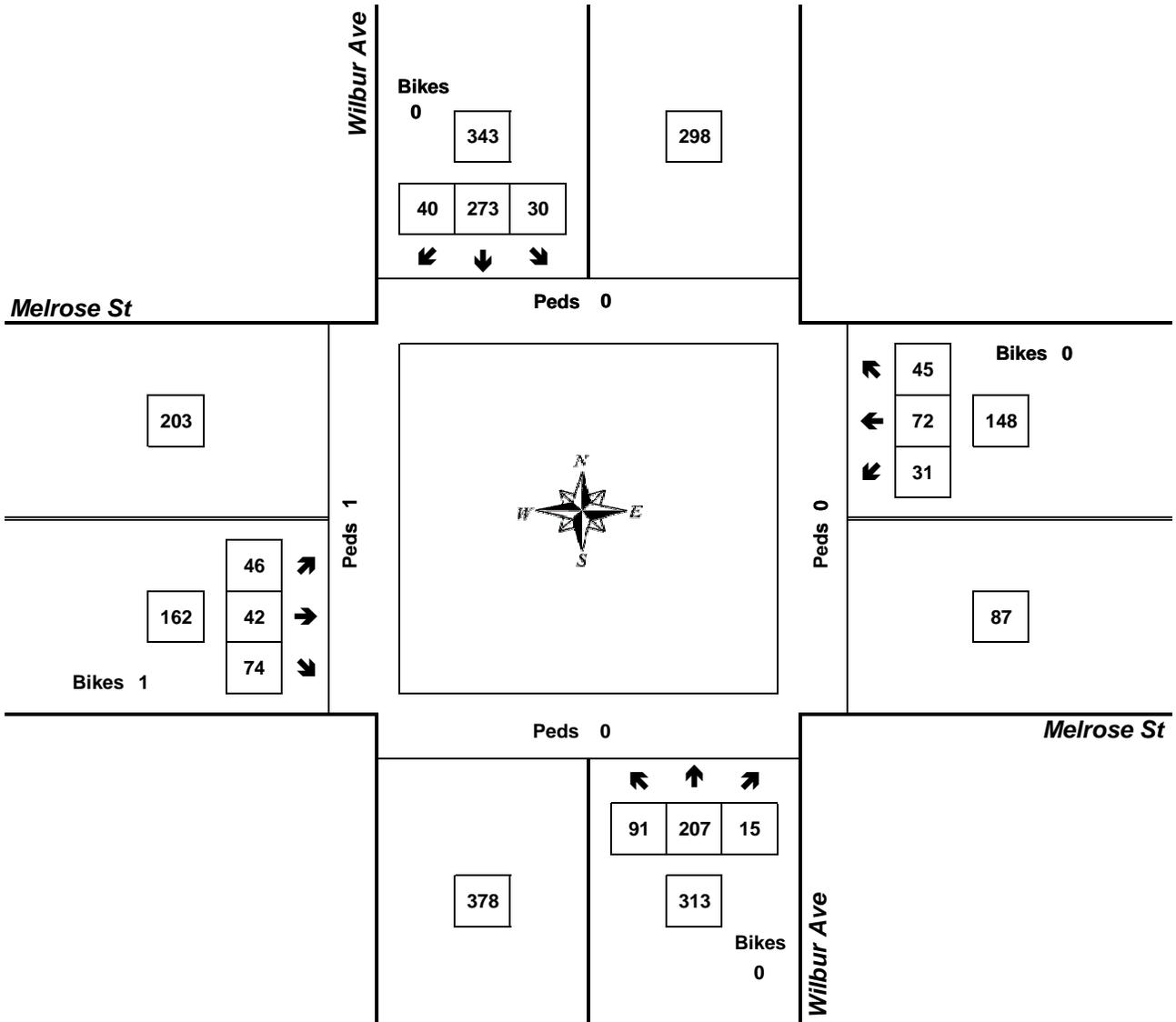


Clay Carney
(503) 833-2740

Wilbur Ave & Melrose St

4:30 PM to 5:30 PM

Wednesday, March 01, 2017

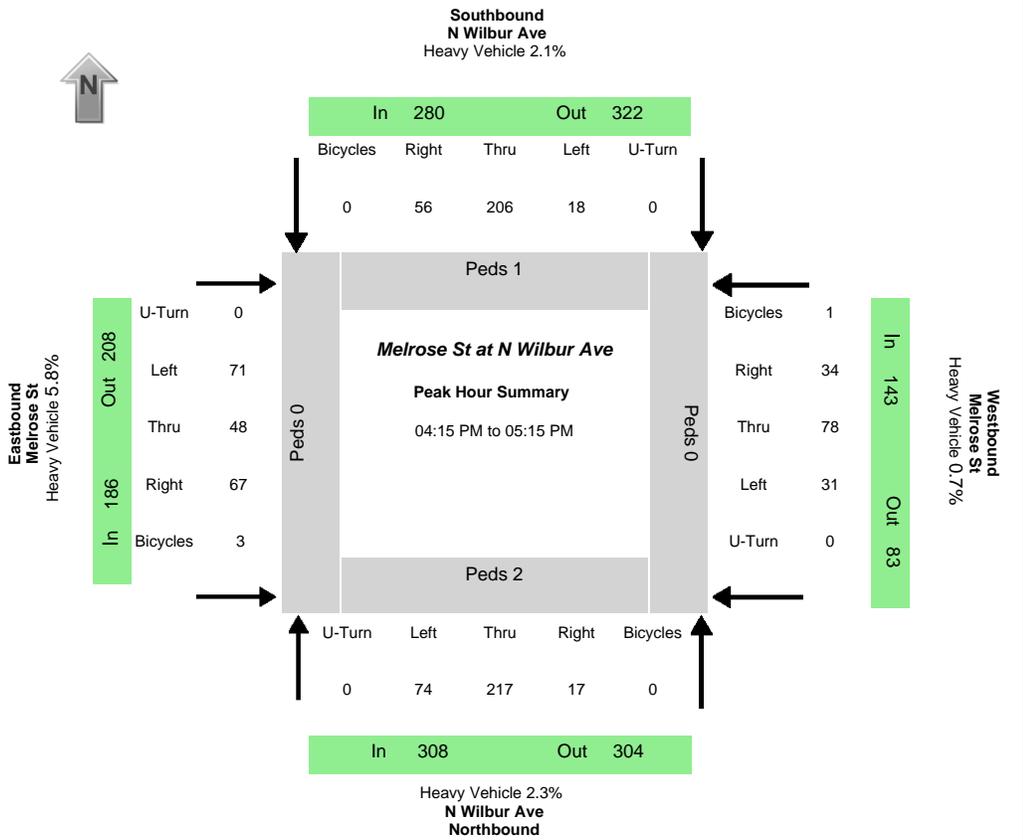


Approach	PHF	HV%	Volume
EB	0.88	1.2%	162
WB	0.82	0.7%	148
NB	0.90	0.6%	313
SB	0.92	3.2%	343
Intersection	0.96	1.7%	966

Count Period: 4:00 PM to 6:00 PM

Data Provided by K-D-N.com 503-594-4224

N/S street	N Wilbur Ave
E/W street	Melrose St
City, State	Walla Walla WA
Site Notes	
Location	46.078572 - -118.304605
Start Date	Tuesday, October 16, 2018
Start Time	04:00:00 PM
Weather	
Study ID #	
Peak Hour Start	04:15:00 PM
Peak 15 Min Start	04:55:00 PM
PHF (15-Min Int)	0.95



Peak-Hour Volumes (PHV)																							
Northbound				Southbound				Eastbound				Westbound				Entering				Leaving			
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	NB	SB	EB	WB	NB	SB	EB	WB
74	217	17	0	18	206	56	0	71	48	67	0	31	78	34	0	308	280	186	143	304	322	208	83
Percent Heavy Vehicles																							
0.0%	2.8%	5.9%	0.0%	11.1%	1.9%	0.0%	0.0%	7.0%	6.3%	4.5%	0.0%	0.0%	0.0%	2.9%	0.0%	2.3%	2.1%	5.9%	0.7%	2.3%	3.7%	0.0%	7.2%

PHV - Bicycles														PHV - Pedestrians							
Northbound				Southbound				Eastbound				Westbound				Sum	in Crosswalk				Sum
Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Sum	NB	SB	EB	WB	Sum
0	0	0	0	0	0	0	0	0	2	1	0	0	1	0	0	4	2	1	0	0	3

Time	Northbound N Wilbur Ave				Southbound N Wilbur Ave				Eastbound Melrose St				Westbound Melrose St				15 Min Sum	1 HR Sum
	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn	Left	Thru	Right	Uturn		
04:00:00 PM	5	17	4	0	6	17	5	0	6	3	6	0	1	3	1	0		
04:05:00 PM	5	9	2	0	0	16	4	0	2	3	7	0	1	7	0	0		
04:10:00 PM	8	18	2	0	3	9	0	0	9	12	4	0	3	9	2	0	209	
04:15:00 PM	8	18	5	0	0	23	4	0	6	4	6	0	4	4	5	0	222	
04:20:00 PM	9	23	1	0	0	16	2	0	7	2	6	0	1	4	4	0	241	
04:25:00 PM	8	13	1	0	1	14	5	0	9	4	3	0	2	13	0	0	235	
04:30:00 PM	9	15	2	0	3	19	2	0	5	4	8	0	2	5	0	0	222	
04:35:00 PM	2	12	2	0	2	19	8	0	6	3	4	0	2	3	2	0	212	
04:40:00 PM	1	26	1	0	1	22	5	0	5	5	4	0	6	11	2	0	228	
04:45:00 PM	2	19	0	0	2	6	3	0	4	2	8	0	1	7	4	0	212	
04:50:00 PM	5	17	0	0	2	16	7	0	2	8	5	0	2	5	4	0	220	
04:55:00 PM	9	26	0	0	0	18	4	0	4	5	5	0	2	5	4	0	213	885
05:00:00 PM	3	16	1	0	0	18	9	0	8	4	9	0	2	3	5	0	233	889
05:05:00 PM	9	15	3	0	2	20	4	0	4	6	3	0	2	10	4	0	242	915
05:10:00 PM	9	17	1	0	5	15	3	0	11	1	6	0	5	8	0	0	241	917
05:15:00 PM	8	14	1	0	5	12	3	0	9	1	2	0	1	5	3	0	227	894
05:20:00 PM	6	14	1	0	0	17	4	0	6	3	7	0	1	6	1	0	211	885
05:25:00 PM	4	22	0	0	4	12	4	0	3	5	11	0	1	5	0	0	201	883
05:30:00 PM	8	13	0	0	2	13	3	0	6	4	6	0	1	9	4	0	206	878
05:35:00 PM	10	32	1	0	1	13	5	0	7	6	7	0	1	8	4	0	235	908
05:40:00 PM	2	14	2	0	3	19	3	0	6	6	3	0	0	3	4	0	229	884
05:45:00 PM	11	9	0	0	2	12	5	0	4	1	5	0	2	9	3	0	223	889
05:50:00 PM	2	19	1	0	0	18	3	0	6	2	7	0	2	6	3	0	197	885
05:55:00 PM	9	11	2	0	3	16	3	0	6	2	2	0	0	4	2	0	192	863

File Name: E:\Survey\Projects\3606-00 La Quinta Inn\Traffic Counts\Roundabout_Heritage&Pine.ppd

Start Date: 1/21/2014

Start Time: 4:00:00 PM

Site Code: 00000014

Location: Myra Rd/Heritage Rd-Pine St

Peak Hour: 4:30 P.M. - 5:30 P.M.

Comment: Observed traffic from Southeast Corner of Roundabout

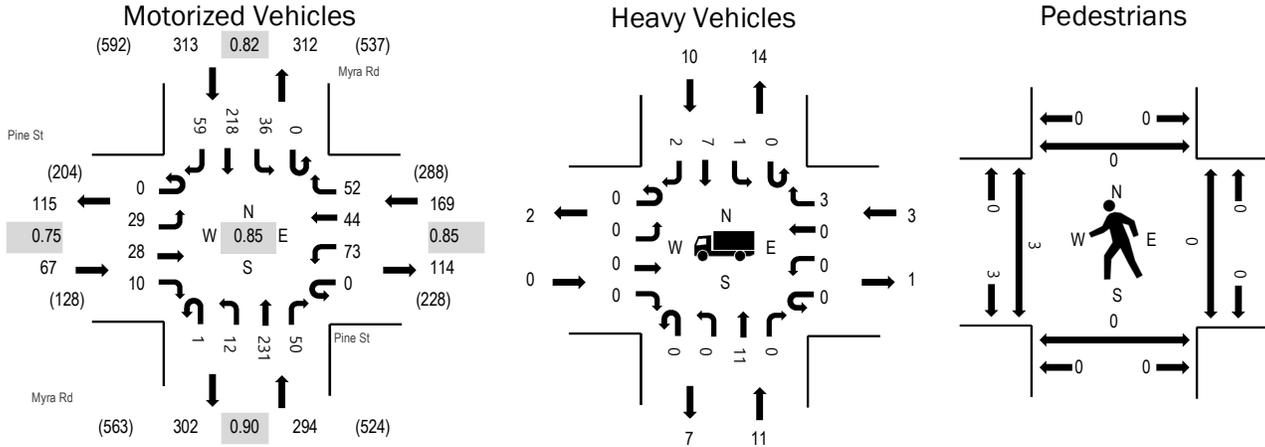
Start Time	From North				From East				From South				From West			
	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds
04:00 PM	24	57	10	0	33	20	32	0	9	35	0	0	1	5	6	0
04:15 PM	21	53	17	0	14	17	18	0	17	55	1	0	3	9	6	0
04:30 PM	31	54	11	0	19	11	12	0	12	46	2	0	3	5	13	0
04:45 PM	10	59	8	0	15	10	16	0	10	51	0	0	0	11	18	0
05:00 PM	19	82	16	1	15	22	14	0	19	60	1	0	10	20	19	0
05:15 PM	30	70	9	0	16	9	14	0	7	48	2	0	6	9	15	0
PM Peak	90	265	44	1	65	52	56	0	48	205	5	0	19	45	65	0
05:30 PM	16	39	6	0	8	15	7	0	14	31	2	0	2	8	7	0
05:45 PM	10	46	10	0	13	18	11	0	10	45	2	0	2	6	8	0



(303) 216-2439
www.alltrafficdata.net

Location: Myra Rd & Pine St PM
Date: Tuesday, March 31, 2020
Peak Hour: 04:15 PM - 05:15 PM
Peak 15-Minutes: 04:30 PM - 04:45 PM

Peak Hour



Note: Total study counts contained in parentheses.

	HV%	PHF
EB	0.0%	0.75
WB	1.8%	0.85
NB	3.7%	0.90
SB	3.2%	0.82
All	2.8%	0.85

Traffic Counts - Motorized Vehicles

Interval Start Time	Pine St Eastbound				Pine St Westbound				Myra Rd Northbound				Myra Rd Southbound				Total	Rolling Hour
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right		
4:00 PM	0	0	1	2	0	9	2	3	0	2	14	4	0	2	19	4	62	826
4:05 PM	0	0	1	1	0	10	1	2	0	1	16	6	0	4	18	3	63	831
4:10 PM	0	6	4	0	0	3	4	1	0	2	20	4	0	6	19	1	70	841
4:15 PM	0	2	3	1	0	6	5	3	0	1	25	4	0	3	9	7	69	843
4:20 PM	0	2	0	0	0	9	2	5	0	0	18	2	0	1	23	3	65	832
4:25 PM	0	3	2	0	0	9	2	3	0	1	12	7	0	7	12	7	65	826
4:30 PM	0	7	4	0	0	11	4	4	0	1	19	7	0	4	25	8	94	809
4:35 PM	0	3	1	0	0	4	3	6	0	4	19	4	0	3	19	7	73	771
4:40 PM	0	4	4	1	0	5	5	8	0	0	20	3	0	6	22	2	80	762
4:45 PM	0	2	2	1	0	4	2	2	0	0	30	2	0	3	13	3	64	736
4:50 PM	0	1	5	0	0	5	4	2	0	1	14	3	0	1	18	3	57	722
4:55 PM	0	1	2	1	0	2	4	5	0	0	15	8	0	3	16	7	64	712
5:00 PM	0	2	3	2	0	8	3	3	0	1	16	2	0	4	18	5	67	706
5:05 PM	0	0	1	1	0	4	5	6	0	2	22	6	0	0	20	6	73	
5:10 PM	0	2	1	3	0	6	5	5	1	1	21	2	0	1	23	1	72	
5:15 PM	0	2	3	1	0	4	3	6	0	1	14	4	0	4	13	3	58	
5:20 PM	0	0	3	4	0	5	1	3	0	2	11	3	0	4	17	6	59	
5:25 PM	0	4	1	0	1	2	2	1	0	1	15	6	0	2	9	4	48	
5:30 PM	0	0	1	2	0	3	4	4	0	0	17	7	0	1	14	3	56	
5:35 PM	0	2	2	1	0	2	3	4	0	0	11	12	0	4	14	9	64	
5:40 PM	0	4	3	0	0	3	3	4	0	0	12	2	0	1	15	7	54	
5:45 PM	0	1	0	0	0	5	2	4	0	1	9	4	0	3	19	2	50	
5:50 PM	0	4	3	1	0	2	2	4	0	1	12	1	0	1	13	3	47	
5:55 PM	0	1	3	0	0	3	3	1	0	0	13	2	0	1	28	3	58	
Count Total	0	53	53	22	1	124	74	89	1	23	395	105	0	69	416	107	1,532	
Peak Hour	0	29	28	10	0	73	44	52	1	12	231	50	0	36	218	59	843	

Traffic Counts - Heavy Vehicles, Bicycles on Road, and Pedestrians/Bicycles on Crosswalk

Interval Start Time	Heavy Vehicles					Interval Start Time	Bicycles on Roadway					Interval Start Time	Pedestrians/Bicycles on Crosswalk				
	EB	NB	WB	SB	Total		EB	NB	WB	SB	Total		EB	NB	WB	SB	Total
4:00 PM	0	0	1	0	1	4:00 PM	0	0	0	0	0	4:00 PM	0	0	0	0	0
4:05 PM	0	2	0	0	2	4:05 PM	0	0	0	0	0	4:05 PM	0	0	0	0	0
4:10 PM	0	1	0	1	2	4:10 PM	0	0	0	0	0	4:10 PM	0	0	0	0	0
4:15 PM	0	2	0	0	2	4:15 PM	0	0	0	0	0	4:15 PM	1	0	0	0	1
4:20 PM	0	1	0	0	1	4:20 PM	0	0	0	0	0	4:20 PM	0	0	0	0	0
4:25 PM	0	1	0	0	1	4:25 PM	0	0	0	0	0	4:25 PM	0	0	0	0	0
4:30 PM	0	1	1	3	5	4:30 PM	0	0	0	0	0	4:30 PM	0	0	0	0	0
4:35 PM	0	1	1	0	2	4:35 PM	0	0	0	0	0	4:35 PM	0	0	0	0	0
4:40 PM	0	0	0	2	2	4:40 PM	0	0	0	0	0	4:40 PM	0	0	0	0	0
4:45 PM	0	0	0	1	1	4:45 PM	0	0	0	0	0	4:45 PM	0	0	0	0	0
4:50 PM	0	2	0	1	3	4:50 PM	0	0	0	0	0	4:50 PM	0	0	0	0	0
4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0	4:55 PM	0	0	0	0	0
5:00 PM	0	2	1	0	3	5:00 PM	0	0	0	0	0	5:00 PM	2	0	0	0	2
5:05 PM	0	1	0	3	4	5:05 PM	0	0	1	0	1	5:05 PM	0	0	0	0	0
5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0	5:10 PM	0	0	0	0	0
5:15 PM	0	0	2	0	2	5:15 PM	0	0	0	0	0	5:15 PM	0	0	0	0	0
5:20 PM	0	1	0	1	2	5:20 PM	0	0	0	0	0	5:20 PM	0	0	0	0	0
5:25 PM	0	0	0	1	1	5:25 PM	0	0	0	0	0	5:25 PM	0	0	0	0	0
5:30 PM	0	1	0	0	1	5:30 PM	0	0	0	0	0	5:30 PM	0	0	0	0	0
5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0	5:35 PM	0	0	0	0	0
5:40 PM	0	1	0	0	1	5:40 PM	0	0	0	0	0	5:40 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1	5:45 PM	0	0	0	0	0	5:45 PM	0	0	0	0	0
5:50 PM	1	1	0	0	2	5:50 PM	0	0	0	0	0	5:50 PM	0	0	0	0	0
5:55 PM	0	0	2	2	4	5:55 PM	0	0	0	0	0	5:55 PM	0	0	0	0	0
Count Total	1	18	8	16	43	Count Total	0	0	1	0	1	Count Total	3	0	0	0	3
Peak Hour	0	11	3	10	24	Peak Hour	0	0	1	0	1	Peak Hour	3	0	0	0	3

PM	Historical Volumes				Historical Volumes					
	With Data Date				With Data Date					
Lower Waitsburg Road/Middle Waitsburg Road		24	4	Sep-14		21	6	Oct-18		
		130		2		178		8		
				24				51		
	5	29	47		5	51	41			
		Sep-14 > Oct-18			4.06 yrs					
		8.1%								
Lower Waitsburg Road/Clinton Street/US Highway 12		35	10	3	Sep-14		58	0	0	Oct-18
		69			5		69			16
		564			469		430			1,282
		92			27		79			24
	9	46	2	17		9	0	0	36	
	Sep-14 > Oct-18			4.06 yrs						
		-1.1%								
Blue Mountain Drive/Middle Waitsburg Road					Mar-17					Oct-18
		9			8		7			8
		51			8		64			18
		158					136			
	12	59	23			11	28	11		
	Mar-17 > Oct-18			1.61 yrs						
		-8.9%								
Wellington Avenue/Melrose Street		28	37	31	Mar-17		41	52	41	Oct-18
		29			53		56			48
		114			135		135			605
		16			9		18			17
	12	16	31	20		12	10	46	10	
	Mar-17 > Oct-18			1.63 yrs						
		9.9%								
Wilbur Avenue/Melrose Street		40	273	30	Mar-17		56	206	18	Oct-18
		46			45		71			34
		42			72		48			917
		74			31		67			78
	12	91	207	15		12	74	217	17	
	Mar-17 > Oct-18			1.63 yrs						
		-3.2%								

Growth Rates	Average	Median
Overall:	1.0%	-1.1%
Excluding Highest & Lowest:	1.3%	-1.1%
Longest-Term Value per Intersection:	N/A	N/A

AM	Recent Volumes	
	With Data Date	
Lower Waitsburg Road / Northern Access		23
		n/a
	1	18
Lower Waitsburg Road / Southern Access		23
		n/a
	2	18

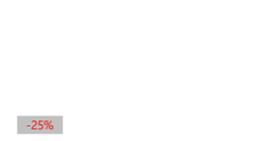
2020 Raw Volumes (unbalanced)	Approach Volumes (unbalanced)	2020 Present Volumes (balanced)
<i>Either grow historical volumes by 1.0%...</i>		
<i>...OR increase recent data by 30%</i>		
0 30 0	30 24	0 30 0
0 54 0	0 FIXED 0	0 54 0
1 0 24 0	1 30 24	1 0 24 0
0 30 0	30 24	0 30 0
0 54 0	0 FIXED 0	0 54 0
2 0 24 0	2 30 24	2 0 24 0

PM	Historical Volumes			Recent Volumes			Numerical Change (gross)			Pct. Change (per year) by Movement			Pct. Change (per year) by Approach			If Historical Volumes Had Grown at 1.0%			
	With Data Date			With Data Date			With # of Years			With # of Years			With # of Years			1.0%			
Lower Watsburg Road / Northern Subdivision Access	27	Oct-18		27	Mar-20		0	0	0	1.46 yrs	#DIV/0!	0%	#DIV/0!	1.46 yrs	0%	1.46 yrs	0	27	0
	86			59			0	-27	0		#DIV/0!	-22%	#DIV/0!		-22%	#DIV/0!	0	87	0
Lower Watsburg Road / Southern Subdivision Access	27	Oct-18		27	Mar-20		0	0	0	1.46 yrs	#DIV/0!	0%	#DIV/0!	1.46 yrs	0%	1.46 yrs	0	27	0
	86			59			0	-27	0		#DIV/0!	-22%	#DIV/0!		-22%	#DIV/0!	0	87	0
Lower Watsburg Road / Middle Watsburg Road	21	6	Oct-18	17	10	Mar-20	2	0	-4	4	1.46 yrs	#DIV/0!	-31%	#DIV/0!	46%	1.46 yrs	2	0	21
	n/a	8		150	3		0	0	-5		#DIV/0!	#####	#DIV/0!		-43%	#DIV/0!	0	181	8
Lower Watsburg Road / Clinton Street / US Highway 12	72	Oct-18		46	0	0	3	0	-26	0	1.46 yrs	-25%	#DIV/0!	#DIV/0!	1.46 yrs	-25%	1.46 yrs	73	0
	69	n/a	16	72	44	3	3	28	3%	3%	120%	#####	#####	#####	#####	#####	#####	70	1,314
Lower Watsburg Road / Blue Mountain Drive / Middle Watsburg Road	0	7	64	0	8	18													
	0	7	64	0	8	18													
Blue Mountain Drive / Banier Street	15	46	5	6	37	0													
	15	46	5	6	37	0													
Wellington Avenue / Melrose Street	56	135	18	n/a	131	17													
	56	135	18	n/a	131	17													
Wellington Avenue / Isaacs Avenue	53	393	0	18	380	0													
	53	393	0	18	380	0													
Wilbur Avenue / US Highway 12	257	216		359	62														
	257	216		359	62														
Wilbur Avenue / Melrose Street	71	48	67	34	78	31													
	71	48	67	34	78	31													



2020 Raw Volumes (unbalanced)	Approach Volumes (unbalanced)	Volume Balancing: Approach Adjustments	Volume Balancing: Movement Adjustments	2020 Present Volumes (balanced)
Ether grow historical volumes by 1.0% ...OR increase recent data by 30%	27 60	FIXED	FIXED	0 27 0
0 87 0	0 60	FIXED	FIXED	0 87 0
1 0 60 0	1 27 60	1	1	1 0 60 0
0 21 6	2 27 60	2	2	2 0 21 6
0 181 0	0 86	FIXED	FIXED	0 181 0
3 0 52 42	3 73 94	3	3	3 0 52 42
70 436 80	651 586	0 7	1 8	77 436 80
0 0 37	4 104 37	4	4	0 0 37
0 7 65	0 36 72	FIXED	FIXED	0 7 65
5 28 0 11	5 83 39	5	5	5 28 0 11
15 47 5	6 71 67	10 9	4 6	24 47 5
4 41 52 41	6 20 137	5 2	6	4 41 52 41
56 135 18	57 137 18	615 133 17	FIXED	57 137 18
10 46 10	7 88 67	7	7	10 46 10
53 393 0	55 405 0	19 392 0	463 460	55 405 0
0 0 0	8 0 0	8	8	0 0 0
257 216	0 261 219	1,243 364 63	619 480	261 219
251 56 206 18	9 282 284	336 326	9	255 0 81
71 48 67	72 49 68	34 79 31	211 189	72 49 68
74 217 17	10 75 220 17	308 312	10	75 220 17

Myra Road / Heritage Road / Pine Street	Historical Volumes			Recent Volumes			Numerical Change (gross)			Pct. Change (per year) by Movement			Pct. Change (per year) by Approach			If Historical Volumes Had Grown at 2.5%		
	With Data Date			With Data Date			With # of Years			With # of Years			With # of Years			2.5%		
Myra Road / Heritage Road / Pine Street	90	265	44	59	218	36	-31	-47	-8	6.19 yrs	-6%	-3%	-3%	6.19 yrs	-3%	6.19 yrs	105	309
	65	45	19	29	28	10	-36	-17	-9		-9%	-6%	-8%		-2%	0%	76	1,118
Myra Road / Heritage Road / Pine Street	5	205	48	13	231	50	8	26	2		26%	2%	1%		2%		6	239



2020 Raw Volumes (unbalanced)	Approach Volumes (unbalanced)	Volume Balancing: Approach Adjustments	Volume Balancing: Movement Adjustments	2020 Present Volumes (balanced)
Ether grow historical volumes by 2.5% ...OR increase recent data by 30%	465 391	6 63	6	105 315 51
76 52 22	172 150	2 1	1 15	76 52 22
6 239 56	11 396 301	8 80	11	6 239 56

Appendix B

In-Process Project



Memo

To: Greg Flowers
From: John Manix, PE
Dated: July 6, 2015
Regarding: Lower Waitsburg Road (LWR) Industrial Park Phase II Traffic Impact Analysis Update – SEPA Site Plan

The LWR Phase II Traffic Impact Analysis (TIA), dated July 2, 2015 is based on a 59,800 SF building for auto sales and 233,200 SF buildings for warehouse. The latest site plan received on July 6, 2015 for the LWR phase II uses a 38,300 SF building for auto sales and no change to the square footage for the warehouses. See the attached site plan.

Update:

The latest site plan has a lower square footage than the original site plan analyzed in the TIA, thus the estimated trips generated are less than those used in the TIA.

The TIA estimated 1,932 average weekday trips for the auto sales building with the outdated site plan. With the new site plan, the estimate is 1,237 average weekday trips.

The reduction of trips by 36% from the auto sales building will not change the recommendations in the original TIA, with the possible exception of the length of the left turn pocket on US 12 at Lower Waitsburg Road. This minor improvement can easily be completed with the US 12 revisions related to LWR Industrial Park Phase I improvements. Attached for the both the site plan in the TIA and the current site plan, are the trip generation calculations for the average weekday, AM peak hour and the PM peak hour. Updating the TIA with the current square footage will require substantial revisions to the document and current TIA is a more conservative estimate of the LWR Phase II impacts. If the site plan were to change again, such as the applicant considers a larger building, the current TIA would accommodate the change up to a 59,800 SF building.

Recommendation: Submit the TIA with the original site plan and include this memo addressing the reduction in the building square footage and average weekday trips for the proposed building for auto sales.

NOT FOR CONSTRUCTION



SEPA SITE PLAN (ALT)

SITE INFORMATION

Parcel(s) = 360716650001
Total Building Area = 261,500 SF
Zoning = Lt. Ind. Comm.
Building Height = 35' ±
Site Area = 720,369 ±
(16.53 Acres ±)
Landscape Area (Incld'd Pond) = 111,705 SF (15.5%)
Total Impervious w/ Bldg = 608,664 (84.4%)

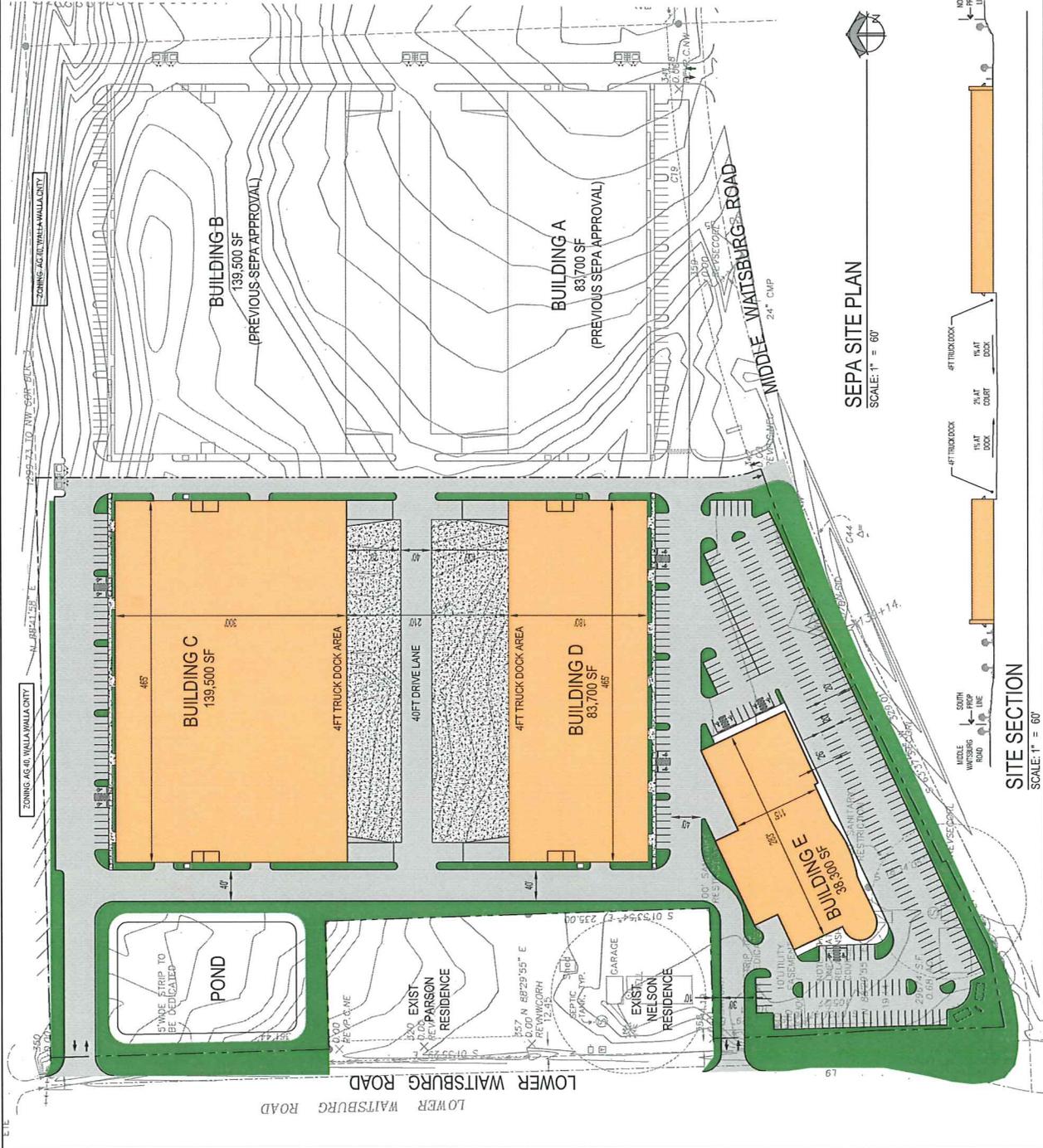
Building C:
139,500 SF Footprint
Office Areas (5%) = 6,975
Warehouse Spec Area = 132,525
● At Grade Doors = 4

Parking Requirements:
Warehouse and Office Spec Areas
139,500 SF at 1:5,000 SF = 28
Total Stalls Provided = 42

Building D:
83,700 SF Footprint
Office Areas (5%) = 4,185
Warehouse Spec Area = 79,515
● At Grade Doors = 4

Parking Requirements:
Warehouse and Office Spec Areas
83,700 SF at 1:5,000 SF = 17
Total Stalls Provided = 42

Building E:
38,300 SF Footprint
Auto Dealership
Total Stalls Provided = 249



SEPA SITE PLAN
SCALE: 1" = 60'

SITE SECTION
SCALE: 1" = 60'



Vicinity Map

ITE Trip Generation

Trip Generation Based on Weighted Average Rates

HDJ Design Group

General			
Land Use Code	Automobile Sales		
Independent Variable	1,000 Sq Ft		
Size (X)		38.3	
Land Use Code		841	

Date: 7/6/2015 Analyst: DKS Project: LWR Phase II/SEPA

	In	Out	Total
Average Weekday	619	619	1,237
New Trips	619	619	1,237
Weekday AM Peak	55	18	74
New Trips	55	18	74
Weekday PM peak	40	60	100
New Trips	40	60	100

Per Trip Generation Manual, 9th Edition for a 38,300 SF building

Analysis Period	Weekday		
Average Rate	Rate		Trips
	32.3		1237
Entering / Exiting			
% Entering	50%		619
% Exiting	50%		619
New Trips			
% internal	0		
% pass by	0		
		In	Out
Total Trips		619	619
Internal Trips		0	0
Passby Trips	0	0	0
New Trips		619	619

Analysis Period	Weekday AM Peak		
Average Rate	Rate		Trips
	1.92		74
Entering / Exiting			
% Entering	75%		55
% Exiting	25%		18
New Trips			
% internal	0		
% pass by	0		
		In	Out
Total Trips		55	18
Internal Trips		0	0
Passby Trips		0	0
New Trips		55	18

Analysis Period	Weekday PM peak		
Average Rate	Rate		Trips
	2.62		100
Entering / Exiting			
% Entering	40%		40
% Exiting	60%		60
New Trips			
% internal	0		
% pass by	0		
		In	Out
Total Trips		40	60
Internal Trips		0	0
Passby Trips		0	0
New Trips		40	60

ITE Trip Generation

Trip Generation Based on Weighted Average Rates
HDJ Design Group

General			
Land Use Code	Automobile Sales		
Independent Variable	1,000 Sq Ft		
Size (X)		59.8	
Land Use Code		841	

Date: 6/12/2015 Analyst: DKS Project: LWR Phase II

	In	Out	Total
Average Weekday	966	966	1,932
New Trips	966	966	1,932
Weekday AM Peak	86	29	115
New Trips	86	29	115
Weekday PM peak	63	94	157
New Trips	63	94	157

Per Trip Generation Manual, 9th Edition for a 59,800 SF building

Analysis Period	Weekday AM Peak		
Average Rate	Rate		Trips
	1.92		115
Entering / Exiting			
% Entering	75%		86
% Exiting	25%		29
New Trips			
% internal	0		
% pass by	0		
		In	Out
Total Trips		86	29
Internal Trips		0	0
Passby Trips		0	0
New Trips		86	29

Analysis Period	Weekday		
Average Rate	Rate		Trips
	32.3		1932
Entering / Exiting			
% Entering	50%		966
% Exiting	50%		966
New Trips			
% internal	0		
% pass by	0		
		In	Out
Total Trips		966	966
Internal Trips		0	0
Passby Trips	0	0	0
New Trips		966	966

Analysis Period	Weekday PM peak		
Average Rate	Rate		Trips
	2.62		157
Entering / Exiting			
% Entering	40%		63
% Exiting	60%		94
New Trips			
% internal	0		
% pass by	0		
		In	Out
Total Trips		63	94
Internal Trips		0	0
Passby Trips		0	0
New Trips		63	94

ITE Trip Generation

Trip Generation Based on Weighted Average Rates
 HDJ Design Group

General			
Land Use Code	Warehouse (SF) 9th Edition		
Independent Variable	1,000 Sq Ft		
Size (X)		223.2	
Land Use Code		150	

Date: 6/12/2015 Analyst: DKS Project: LWR Phase II

	In	Out	Total
Average Weekday	397	397	795
New Trips	397	397	795
Weekday AM Peak	53	14	67
New Trips	53	14	67
Weekday PM peak	18	54	71
New Trips	18	54	71

Per Trip Generation Manual, 9th Edition for 223,200 SF warehouse

Analysis Period	Weekday AM Peak		
Average Rate	Rate		Trips
	0.3		67
Entering / Exiting			
% Entering	79%		53
% Exiting	21%		14
New Trips			
% internal	0		
% pass by	0		
		In	Out
Total Trips		53	14
Internal Trips		0	0
Passby Trips		0	0
New Trips		53	14

Analysis Period	Weekday		
Average Rate	Rate		Trips
	3.56		795
Entering / Exiting			
% Entering	50%		397
% Exiting	50%		397
New Trips			
% internal	0		
% pass by	0		
		In	Out
Total Trips		397	397
Internal Trips		0	0
Passby Trips	0	0	0
New Trips		397	397

Analysis Period	Weekday PM peak		
Average Rate	Rate		Trips
	0.32		71
Entering / Exiting			
% Entering	25%		18
% Exiting	75%		54
New Trips			
% internal	0		
% pass by	0		
		In	Out
Total Trips		18	54
Internal Trips		0	0
Passby Trips		0	0
New Trips		18	54

Transportation Impact Analysis

LWR INDUSTRIAL PARK Phase II

City of Walla Walla, Washington

Prepared for:

LWR COMMERCIAL LLC
Mike Corliss
LWR Commercial LLC
511 N 2nd Avenue
Walla Walla, WA 99632
(206)819-8000

Prepared by:

John Manix, PE
HDJ Design Group
314 W. 15th Street
Vancouver, WA 98660
(360) 695-3488



7/2/2015

July 2, 2015

PROPOSED CONDITIONS

The proposed development will add traffic to the roadway system. Where the project is located, the size of the project, and when it will be completed are all important elements that need to be considered to determine the impacts of this development on safety and capacity. It is also important to examine how the project will operate with the existing transportation system, estimate how much new traffic it will generate, and predict where traffic generated by the site will be distributed. Furthermore, this section will address any funded infrastructure changes planned by other agencies or developers. All of the above elements are important in assessing the traffic impact of this project.

PROJECT DESCRIPTION

This proposal would develop an undeveloped site of approximately 16 acres with an auto dealership or commercial building and additional wine/barrel storage warehouse facilities. The site is located in the NW ¼ of the SW ¼ of Section 16, Township 7 North, Range 36 East of the Willamette Meridian. The project proposes to access Lower Waitsburg Road through two new driveway access points. It is anticipated that it will also access Middle Waitsburg Road through the two access points that Phase I will have constructed in 2016. This report analyzes the traffic impacts generated by the completed development. This project is assumed to be complete in 2017.

Access

Properly located access points are essential to allow for the safe and orderly movement of traffic in and out of a site. There will be two new access points approximately 550 feet apart onto Lower Waitsburg Road. The southern access point is 320 feet north of Lower Waitsburg Road. Access will also be through Phase I (2016) onto Middle Waitsburg Road. Additional access may be available as the surrounding parcels are developed in the future but, for this analysis, it is assumed all project traffic will use the two new Lower Waitsburg Road access points and two future Middle Waitsburg Road access points.

TRIP GENERATION AND DISTRIBUTION

Trip Generation

Trip generation estimates were prepared for the proposed development (Appendix A). For the purposes of this study, the ITE Trip Generation Manual, 9th Edition was used to determine trips from the site. Average rates for the land uses were used to determine project generated trips for a warehouse, land use code 150 and for automobile sales, land use code 841. New trips generated by the project are shown in Table 4.

The proposed use for the warehouses is the storage of empty and fermenting wine barrels for surrounding vineyards. The empty wine barrels will be delivered to the vineyards on an “on-call” basis. It is anticipated that one two-axel delivery truck (single unit vehicle) will service

multiple wineries for barrel deliveries. The vineyards that will be storing their fermenting wine barrels at this storage facility will be using a two-axel delivery truck (single unit vehicle) for barrel drop-off.

Neither of these activities are foreseen to occur on more than a daily basis. The expected daily trips generated by the proposal are far fewer than those noted for land use code 150.

Auto sales is projected for building E, land use code 841. Another possible use for the building is specialty retail, land use code 826. Auto sales was selected for analysis as it is the higher trip generator between the two land use types and provides flexibility for the developer.

For this analysis the ITE Trip Generation rate will be used to assure the trips associated with a change of occupancy from auto sales to specialty retail will be accounted for. The ITE trip accounting is based upon the building square footage.

**Table 4
Trip Generation**

Land Use:	Warehouse (Code 150)		Auto Sales (Code 841)	
Weekday ADT	788		1932	
Total Peak Hour Trips:	PM		PM	
In	25%	18	40%	63
Out	75%	53	60%	94
Total:	100%	71	100%	157

Trip Distribution

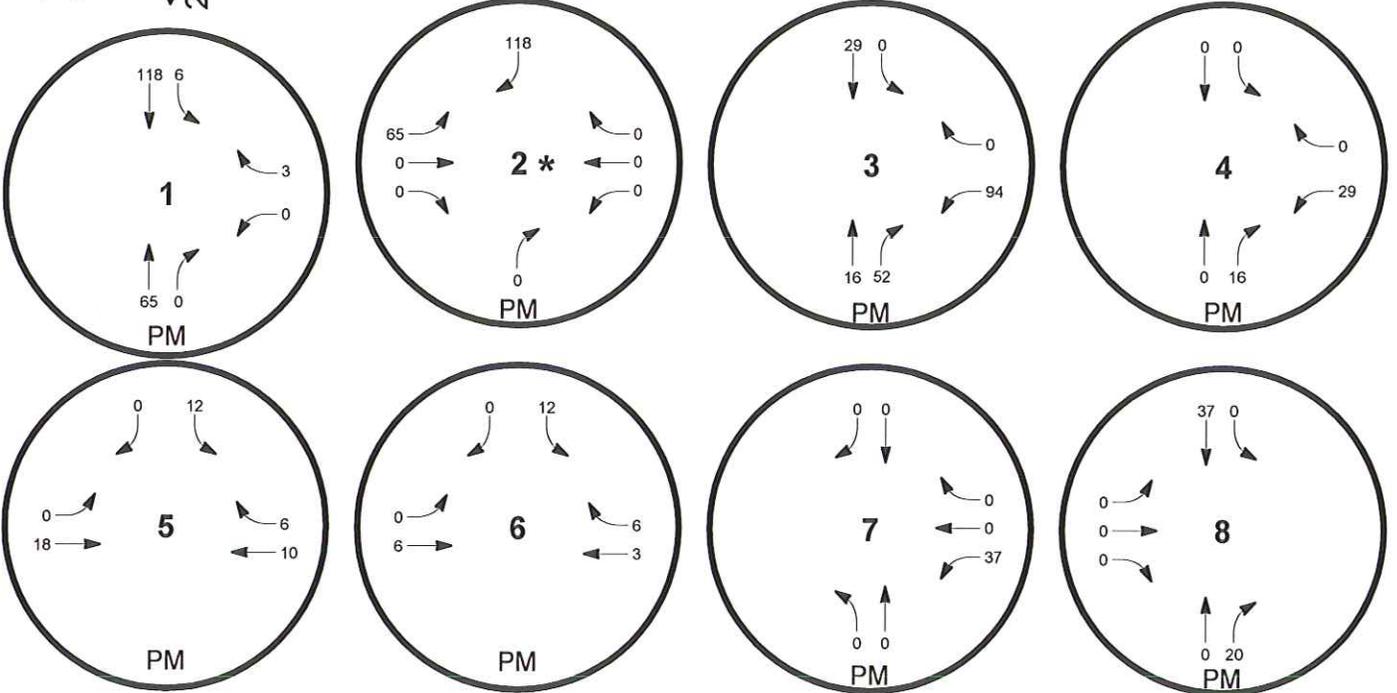
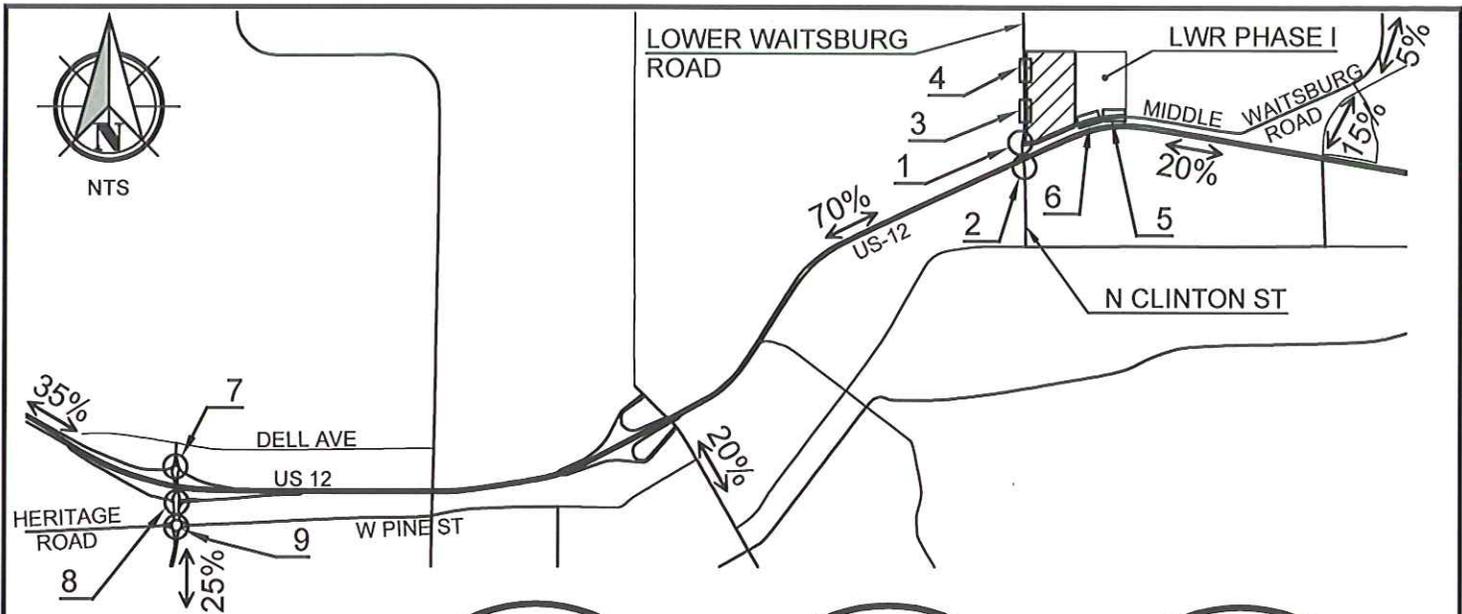
The trip distribution is based on the anticipated travel between wineries in the area and the proposed barrel/wine storage facility, discussions with City and WSDOT staff, and engineering judgment. Approximately 70% of the development trips will primarily utilize US 12 for outgoing and incoming trips. The remaining 30% will be distributed along the local street system east of the site toward Waitsburg or into Walla Walla. Site generated trips and distribution are shown in Figure 6.

PROPOSED INFRASTRUCTURE

Roadways and Intersections

There have been no recent improvements made to either Lower or Middle Waitsburg Roads, the Lower/Middle Waitsburg Road intersection or roadways in the project vicinity.

Myra Road was extended from Rose Street to US 12 and the intersections at Heritage Road-Pine Street and US 12 ramps were upgraded with roundabouts in the last 5 years. In the last year,



* NB AND SB THROUGH AND LEFT TURN MOVEMENTS ELIMINATED BY PHASE I MEDIAN TREATMENT.

LEGEND	
PM	PM PEAK HR VOLUME
	PROPOSED DEVELOPMENT
	MAJOR INTERSECTION
	ACCESS LOCATION

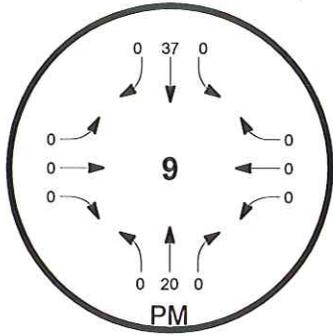


FIGURE 6

Site Generated PM Trips and Distribution LWR Industrial Park Phase II - TIA

Appendix C

Trip Generation Calculations

Trip Generation Summary

Alternative: Alternative 1

Phase: New Site Plan - 250 Total Lots

Project: Harvey Ranch Estates

Open Date: 10/27/2020

Analysis Date: 10/27/2020

ITE	Land Use	Weekday Average Daily Trips			Weekday AM Peak Hour of Adjacent Street Traffic			Weekday PM Peak Hour of Adjacent Street Traffic					
		*	Enter	Exit	Total	*	Enter	Exit	Total	*	Enter	Exit	Total
210	SFHOUSE 1 250 Dwelling Units		1208	1208	2416		46	136	182		154	91	245
Unadjusted Volume			1208	1208	2416		46	136	182		154	91	245
Internal Capture Trips			0	0	0		0	0	0		0	0	0
Pass-By Trips			0	0	0		0	0	0		0	0	0
Volume Added to Adjacent Streets			1208	1208	2416		46	136	182		154	91	245

Total Weekday Average Daily Trips Internal Capture = 0 Percent

Total Weekday AM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

Total Weekday PM Peak Hour of Adjacent Street Traffic Internal Capture = 0 Percent

* - Custom rate used for selected time period.

Source: Institute of Transportation Engineers, Trip Generation Manual 10th Edition

TRIP GENERATION 10, TRAFFICWARE, LLC

Trip Generation - Breakdown by Stage
Harvey Ranch Estates

Harvey Ranch Estates - Total				ADT	AM			PM		
ITE Code	Land Use	Total	Unit		Enter	Exit	Total	Enter	Exit	Total
210	Single Family Residential	250	dwelling units	2,416	46	136	182	154	91	245
				2,416	46	136	182	154	91	245

Harvey Ranch Estates - Individual Stages				ADT	AM			PM		
	Land Use	Total	Unit		Enter	Exit	Total	Enter	Exit	Total
2023	Stage 1	84	dwelling units	812	16	46	62	52	31	83
	2023 Primary Trips (Stage 1)			812	16	46	62	52	31	83

	Land Use	Total	Unit	ADT	AM			PM		
					Enter	Exit	Total	Enter	Exit	Total
2025	Stage 2	83	dwelling units	802	15	45	60	51	30	81
	2025 Primary Trips (Stage 1 & 2)			1,614	31	91	122	103	61	164

	Land Use	Total	Unit	ADT	AM			PM		
					Enter	Exit	Total	Enter	Exit	Total
2027	Stage 3	83	dwelling units	802	15	45	60	51	30	81
	2027 Primary Trips (Stage 1, 2 & 3)			2,416	46	136	182	154	91	245

Appendix D

Level of Service Calculations

HCM 6th TWSC
 3: Lower Waitsburg Road & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	3.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	52	8	52	42	6	21
Future Vol, veh/h	52	8	52	42	6	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	5	17	0
Mvmt Flow	57	9	57	46	7	23

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	117	80	0	0	103
Stage 1	80	-	-	-	-
Stage 2	37	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.27
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.353
Pot Cap-1 Maneuver	879	980	-	-	1400
Stage 1	943	-	-	-	-
Stage 2	985	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	875	980	-	-	1400
Mov Cap-2 Maneuver	875	-	-	-	-
Stage 1	943	-	-	-	-
Stage 2	980	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	1.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	888	1400
HCM Lane V/C Ratio	-	-	0.073	0.005
HCM Control Delay (s)	-	-	9.4	7.6
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0

HCM 6th TWSC
4: Lower Waitsburg Road & US Highway 12

10/28/2020

Intersection												
Int Delay, s/veh	1.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↗	↘	↗↗	↗			↗			↗
Traffic Vol, veh/h	77	436	80	24	578	17	0	0	37	0	0	73
Future Vol, veh/h	77	436	80	24	578	17	0	0	37	0	0	73
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	Stop
Storage Length	250	-	0	150	-	20	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	4	4	2	2	4	12	2	2	6	2	2	3
Mvmt Flow	88	495	91	27	657	19	0	0	42	0	0	83

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	676	0	495	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.18	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.24	-	2.22	-
Pot Cap-1 Maneuver	898	0	1065	0
Stage 1	-	0	-	0
Stage 2	-	0	-	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	898	-	1065	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1.4	0.3	10.2	11.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	740	898	-	1065	-	-	664
HCM Lane V/C Ratio	0.057	0.097	-	0.026	-	-	0.125
HCM Control Delay (s)	10.2	9.4	-	8.5	-	-	11.2
HCM Lane LOS	B	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.3	-	0.1	-	-	0.4

HCM 6th TWSC
5: Blue Mountain Drive & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	3.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	7	65	18	8	28	11
Future Vol, veh/h	7	65	18	8	28	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	16	2	12	2	2
Mvmt Flow	8	73	20	9	31	12

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	81	0	94
Stage 1	-	-	-	-	45
Stage 2	-	-	-	-	49
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1517	-	906
Stage 1	-	-	-	-	977
Stage 2	-	-	-	-	973
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1517	-	894
Mov Cap-2 Maneuver	-	-	-	-	894
Stage 1	-	-	-	-	977
Stage 2	-	-	-	-	960

Approach	EB	WB	NB
HCM Control Delay, s	0	5.1	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	927	-	-	1517	-
HCM Lane V/C Ratio	0.047	-	-	0.013	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC
6: Blue Mountain Drive & Rainier Street

10/28/2020

Intersection												
Int Delay, s/veh	5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	24	47	5	0	38	10	4	5	0	24	20	39
Future Vol, veh/h	24	47	5	0	38	10	4	5	0	24	20	39
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	55	6	0	44	12	5	6	0	28	23	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	56	0	0	63	0	0	200	172	60	167	169	50
Stage 1	-	-	-	-	-	-	116	116	-	50	50	-
Stage 2	-	-	-	-	-	-	84	56	-	117	119	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1549	-	-	1540	-	-	759	721	1005	797	724	1018
Stage 1	-	-	-	-	-	-	889	800	-	963	853	-
Stage 2	-	-	-	-	-	-	924	848	-	888	797	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1549	-	-	1537	-	-	695	706	1003	780	709	1018
Mov Cap-2 Maneuver	-	-	-	-	-	-	695	706	-	780	709	-
Stage 1	-	-	-	-	-	-	870	783	-	945	853	-
Stage 2	-	-	-	-	-	-	859	848	-	865	780	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.3	0	10.2	9.8
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	701	1549	-	-	1537	-	-	853
HCM Lane V/C Ratio	0.015	0.018	-	-	-	-	-	0.113
HCM Control Delay (s)	10.2	7.4	0	-	0	-	-	9.8
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.4

HCM 6th TWSC
7: Wellington Avenue & Melrose Street

10/28/2020

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	57	137	18	17	133	49	10	47	10	42	53	42
Future Vol, veh/h	57	137	18	17	133	49	10	47	10	42	53	42
Conflicting Peds, #/hr	1	0	6	6	0	1	2	0	3	3	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	5
Mvmt Flow	62	149	20	18	145	53	11	51	11	46	58	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	199	0	0	175	0	0	551	524	168	526	508	175
Stage 1	-	-	-	-	-	-	289	289	-	209	209	-
Stage 2	-	-	-	-	-	-	262	235	-	317	299	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.345
Pot Cap-1 Maneuver	1373	-	-	1401	-	-	445	458	876	462	468	861
Stage 1	-	-	-	-	-	-	719	673	-	793	729	-
Stage 2	-	-	-	-	-	-	743	710	-	694	666	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1372	-	-	1393	-	-	358	425	869	393	435	859
Mov Cap-2 Maneuver	-	-	-	-	-	-	358	425	-	393	435	-
Stage 1	-	-	-	-	-	-	679	635	-	753	717	-
Stage 2	-	-	-	-	-	-	636	699	-	597	629	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.7			14.6			15.4		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	447	1372	-	-	1393	-	-	494
HCM Lane V/C Ratio	0.163	0.045	-	-	0.013	-	-	0.301
HCM Control Delay (s)	14.6	7.7	0	-	7.6	0	-	15.4
HCM Lane LOS	B	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	1.3

HCM 6th TWSC
8: Isaacs Avenue & Wellington Avenue

10/28/2020

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Vol, veh/h	55	405	392	19	31	71
Future Vol, veh/h	55	405	392	19	31	71
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	60
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	440	426	21	34	77

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	447	0	-	0	777 225
Stage 1	-	-	-	-	437 -
Stage 2	-	-	-	-	340 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1110	-	-	-	334 778
Stage 1	-	-	-	-	619 -
Stage 2	-	-	-	-	692 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1110	-	-	-	310 777
Mov Cap-2 Maneuver	-	-	-	-	310 -
Stage 1	-	-	-	-	574 -
Stage 2	-	-	-	-	692 -

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1110	-	-	-	310	777
HCM Lane V/C Ratio	0.054	-	-	-	0.109	0.099
HCM Control Delay (s)	8.4	0.2	-	-	18	10.1
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4	0.3

Intersection						
Int Delay, s/veh	9.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	261	219	63	364	255	81
Future Vol, veh/h	261	219	63	364	255	81
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	Free	-	Stop
Storage Length	-	245	225	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	3	2	3	3	2
Mvmt Flow	287	241	69	400	280	89

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	287	0	625
Stage 1	-	-	-	-	287
Stage 2	-	-	-	-	338
Critical Hdwy	-	-	4.14	-	6.86
Critical Hdwy Stg 1	-	-	-	-	5.86
Critical Hdwy Stg 2	-	-	-	-	5.86
Follow-up Hdwy	-	-	2.22	-	3.53
Pot Cap-1 Maneuver	-	0	1272	-	415
Stage 1	-	0	-	-	733
Stage 2	-	0	-	-	691
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1272	-	393
Mov Cap-2 Maneuver	-	-	-	-	393
Stage 1	-	-	-	-	733
Stage 2	-	-	-	-	654

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	28
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	393	877	-	1272	-
HCM Lane V/C Ratio	0.713	0.101	-	0.054	-
HCM Control Delay (s)	33.9	9.6	-	8	-
HCM Lane LOS	D	A	-	A	-
HCM 95th %tile Q(veh)	5.4	0.3	-	0.2	-

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	72	49	68	31	79	34	75	220	17	18	209	57
Future Vol, veh/h	72	49	68	31	79	34	75	220	17	18	209	57
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	7	6	4	2	2	3	2	3	6	11	2	2
Mvmt Flow	76	52	72	33	83	36	79	232	18	19	220	60
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	11.9	11.1	14	13.4
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	38%	22%	6%
Vol Thru, %	71%	26%	55%	74%
Vol Right, %	5%	36%	24%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	312	189	144	284
LT Vol	75	72	31	18
Through Vol	220	49	79	209
RT Vol	17	68	34	57
Lane Flow Rate	328	199	152	299
Geometry Grp	1	1	1	1
Degree of Util (X)	0.502	0.327	0.251	0.463
Departure Headway (Hd)	5.504	5.91	5.971	5.578
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	650	605	597	643
Service Time	3.565	3.98	4.048	3.641
HCM Lane V/C Ratio	0.505	0.329	0.255	0.465
HCM Control Delay	14	11.9	11.1	13.4
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.8	1.4	1	2.4

MOVEMENT SUMMARY

Site: 11 [PM 2020 Baseline (Site Folder: General)]

Myra Road / Heritage Road / Pine Street Intersection
 Site Category: Roundabout Intersection
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Myra Road														
3	L2	8	2.0	9	2.0	0.161	9.6	LOS A	0.9	22.1	0.38	0.37	0.38	35.7
8	T1	302	4.0	355	4.0	0.161	3.0	LOS A	0.9	22.8	0.37	0.37	0.37	33.9
18	R2	71	2.0	84	2.0	0.161	3.6	LOS A	0.9	22.8	0.36	0.37	0.36	30.8
Approach		381	3.6	448	3.6	0.161	3.3	LOS A	0.9	22.8	0.37	0.37	0.37	33.3
East: Pine Street														
1	L2	66	2.0	78	2.0	0.222	8.4	LOS A	0.9	21.8	0.42	0.50	0.42	31.6
6	T1	61	2.0	72	2.0	0.222	2.2	LOS A	0.9	21.8	0.42	0.50	0.42	32.4
16	R2	76	2.0	89	2.0	0.222	3.0	LOS A	0.9	21.8	0.42	0.50	0.42	30.2
Approach		203	2.0	239	2.0	0.222	4.5	LOS A	0.9	21.8	0.42	0.50	0.42	31.3
North: Myra Road														
7	L2	51	2.0	60	2.0	0.191	9.4	LOS A	1.1	27.1	0.34	0.42	0.34	32.2
4	T1	315	2.0	371	2.0	0.191	2.8	LOS A	1.1	28.0	0.33	0.39	0.33	33.8
14	R2	105	2.0	124	2.0	0.191	3.4	LOS A	1.1	28.0	0.32	0.36	0.32	34.4
Approach		471	2.0	554	2.0	0.191	3.7	LOS A	1.1	28.0	0.33	0.38	0.33	33.8
West: Heritage Road														
5	L2	76	2.0	89	2.0	0.168	11.4	LOS B	0.6	15.9	0.42	0.64	0.42	34.7
2	T1	52	2.0	61	2.0	0.168	4.7	LOS A	0.6	15.9	0.42	0.64	0.42	32.1
12	R2	23	2.0	27	2.0	0.168	4.9	LOS A	0.6	15.9	0.42	0.64	0.42	33.1
Approach		151	2.0	178	2.0	0.168	8.1	LOS A	0.6	15.9	0.42	0.64	0.42	33.5
All Vehicles		1206	2.5	1419	2.5	0.222	4.2	LOS A	1.1	28.0	0.37	0.43	0.37	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: L:\Projects\66000\66230\66230-000\Traffic\Documents\LOS\Myra-Heritage-Pine.sip9

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	0	25	21	0	31
Future Vol, veh/h	6	0	25	21	0	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	12	2	2	2
Mvmt Flow	7	0	28	24	0	35

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	75	40	0	0	52	0
Stage 1	40	-	-	-	-	-
Stage 2	35	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	928	1031	-	-	1554	-
Stage 1	982	-	-	-	-	-
Stage 2	987	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	928	1031	-	-	1554	-
Mov Cap-2 Maneuver	928	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	987	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	928	1554
HCM Lane V/C Ratio	-	-	0.007	-
HCM Control Delay (s)	-	-	8.9	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	0	46	70	0	37
Future Vol, veh/h	20	0	46	70	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	12	2	2	2
Mvmt Flow	23	0	52	80	0	42

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	134	92	0	0	132
Stage 1	92	-	-	-	-
Stage 2	42	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	860	965	-	-	1453
Stage 1	932	-	-	-	-
Stage 2	980	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	860	965	-	-	1453
Mov Cap-2 Maneuver	860	-	-	-	-
Stage 1	932	-	-	-	-
Stage 2	980	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	860	1453
HCM Lane V/C Ratio	-	-	0.026	-
HCM Control Delay (s)	-	-	9.3	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC

1: Lower Waitsburg Road & Northern Subdivision Access

10/28/2020

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	0	62	11	0	28
Future Vol, veh/h	23	0	62	11	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	2	2	17
Mvmt Flow	26	0	70	13	0	32

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	109	77	0	0	83	0
Stage 1	77	-	-	-	-	-
Stage 2	32	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	888	984	-	-	1514	-
Stage 1	946	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	888	984	-	-	1514	-
Mov Cap-2 Maneuver	888	-	-	-	-	-
Stage 1	946	-	-	-	-	-
Stage 2	991	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	888	1514
HCM Lane V/C Ratio	-	-	0.029	-
HCM Control Delay (s)	-	-	9.2	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		B			A
Traffic Vol, veh/h	72	0	73	37	0	51
Future Vol, veh/h	72	0	73	37	0	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	2	2	17
Mvmt Flow	82	0	83	42	0	58

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	162	104	0	0	125	0
Stage 1	104	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	829	951	-	-	1462	-
Stage 1	920	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	829	951	-	-	1462	-
Mov Cap-2 Maneuver	829	-	-	-	-	-
Stage 1	920	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	829	1462
HCM Lane V/C Ratio	-	-	0.099	-
HCM Control Delay (s)	-	-	9.8	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 6th TWSC
 3: Lower Waitsburg Road & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	54	10	100	43	11	112
Future Vol, veh/h	54	10	100	43	11	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	5	17	0
Mvmt Flow	59	11	109	47	12	122

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	279	133	0	0	156
Stage 1	133	-	-	-	-
Stage 2	146	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.27
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.353
Pot Cap-1 Maneuver	711	916	-	-	1337
Stage 1	893	-	-	-	-
Stage 2	881	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	704	916	-	-	1337
Mov Cap-2 Maneuver	704	-	-	-	-
Stage 1	893	-	-	-	-
Stage 2	872	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	730	1337
HCM Lane V/C Ratio	-	-	0.095	0.009
HCM Control Delay (s)	-	-	10.5	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 6th TWSC
4: Lower Waitsburg Road & US Highway 12

10/28/2020

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↗	↖	↗	↖			↖			↖
Traffic Vol, veh/h	125	449	82	25	596	18	0	0	38	0	0	165
Future Vol, veh/h	125	449	82	25	596	18	0	0	38	0	0	165
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	Stop
Storage Length	250	-	0	150	-	20	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	2	2	4	12	2	2	6	2	2	3
Mvmt Flow	132	473	86	26	627	19	0	0	40	0	0	174

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	646	0	-	473	0	0	-	-	237	-	-	314
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.18	-	-	4.14	-	-	-	-	7.02	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.24	-	-	2.22	-	-	-	-	3.36	-	-	3.33
Pot Cap-1 Maneuver	922	-	0	1085	-	-	0	0	752	0	0	679
Stage 1	-	-	0	-	-	-	0	0	-	0	0	-
Stage 2	-	-	0	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	922	-	-	1085	-	-	-	-	752	-	-	679
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	2.1		0.3		10.1		12.1	
HCM LOS					B		B	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	752	922	-	1085	-	-	679
HCM Lane V/C Ratio	0.053	0.143	-	0.024	-	-	0.256
HCM Control Delay (s)	10.1	9.6	-	8.4	-	-	12.1
HCM Lane LOS	B	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.5	-	0.1	-	-	1

HCM 6th TWSC
 5: Blue Mountain Drive & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	13	84	19	11	38	11
Future Vol, veh/h	13	84	19	11	38	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	16	2	12	2	2
Mvmt Flow	15	94	21	12	43	12

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	109	0	116
Stage 1	-	-	-	-	62
Stage 2	-	-	-	-	54
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1481	-	880
Stage 1	-	-	-	-	961
Stage 2	-	-	-	-	969
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1481	-	868
Mov Cap-2 Maneuver	-	-	-	-	868
Stage 1	-	-	-	-	961
Stage 2	-	-	-	-	955

Approach	EB	WB	NB
HCM Control Delay, s	0	4.7	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	895	-	-	1481	-
HCM Lane V/C Ratio	0.062	-	-	0.014	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
6: Blue Mountain Drive & Rainier Street

10/28/2020

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	48	5	0	39	10	4	5	0	25	21	57
Future Vol, veh/h	34	48	5	0	39	10	4	5	0	25	21	57
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	56	6	0	45	12	5	6	0	29	24	66

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	64	0	0	237	198	61	193	195	51
Stage 1	-	-	-	-	-	-	141	141	-	51	51	-
Stage 2	-	-	-	-	-	-	96	57	-	142	144	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1547	-	-	1538	-	-	717	698	1004	767	700	1017
Stage 1	-	-	-	-	-	-	862	780	-	962	852	-
Stage 2	-	-	-	-	-	-	911	847	-	861	778	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1547	-	-	1535	-	-	637	678	1002	746	680	1017
Mov Cap-2 Maneuver	-	-	-	-	-	-	637	678	-	746	680	-
Stage 1	-	-	-	-	-	-	837	757	-	936	852	-
Stage 2	-	-	-	-	-	-	827	847	-	831	755	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.9			0			10.6			9.9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	659	1547	-	-	1535	-	-	855
HCM Lane V/C Ratio	0.016	0.026	-	-	-	-	-	0.14
HCM Control Delay (s)	10.6	7.4	0	-	0	-	-	9.9
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.5

HCM 6th TWSC
7: Wellington Avenue & Melrose Street

10/28/2020

Intersection												
Int Delay, s/veh	6.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	59	141	19	18	137	56	10	51	10	54	61	43
Future Vol, veh/h	59	141	19	18	137	56	10	51	10	54	61	43
Conflicting Peds, #/hr	1	0	6	6	0	1	2	0	3	3	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	5
Mvmt Flow	64	153	21	20	149	61	11	55	11	59	66	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	211	0	0	180	0	0	576	549	173	549	529	183
Stage 1	-	-	-	-	-	-	298	298	-	221	221	-
Stage 2	-	-	-	-	-	-	278	251	-	328	308	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.345
Pot Cap-1 Maneuver	1360	-	-	1396	-	-	428	443	871	446	455	852
Stage 1	-	-	-	-	-	-	711	667	-	781	720	-
Stage 2	-	-	-	-	-	-	728	699	-	685	660	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1359	-	-	1388	-	-	335	410	864	373	421	850
Mov Cap-2 Maneuver	-	-	-	-	-	-	335	410	-	373	421	-
Stage 1	-	-	-	-	-	-	670	628	-	740	708	-
Stage 2	-	-	-	-	-	-	612	687	-	583	622	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.7			15.3			17.2		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	428	1359	-	-	1388	-	-	464
HCM Lane V/C Ratio	0.18	0.047	-	-	0.014	-	-	0.37
HCM Control Delay (s)	15.3	7.8	0	-	7.6	0	-	17.2
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	1.7

HCM 6th TWSC
8: Isaacs Avenue & Wellington Avenue

10/28/2020

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Vol, veh/h	60	417	404	20	32	79
Future Vol, veh/h	60	417	404	20	32	79
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	60
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	453	439	22	35	86

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	461	0	-	0	807
Stage 1	-	-	-	-	450
Stage 2	-	-	-	-	357
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1096	-	-	-	319
Stage 1	-	-	-	-	609
Stage 2	-	-	-	-	679
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1096	-	-	-	294
Mov Cap-2 Maneuver	-	-	-	-	294
Stage 1	-	-	-	-	561
Stage 2	-	-	-	-	679

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1096	-	-	-	294	769
HCM Lane V/C Ratio	0.06	-	-	-	0.118	0.112
HCM Control Delay (s)	8.5	0.3	-	-	18.9	10.3
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4	0.4

Intersection						
Int Delay, s/veh	10.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	269	226	65	375	263	83
Future Vol, veh/h	269	226	65	375	263	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	Free	-	Stop
Storage Length	-	245	225	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	3	2	3	3	2
Mvmt Flow	292	246	71	408	286	90

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	292	0	638
Stage 1	-	-	-	-	292
Stage 2	-	-	-	-	346
Critical Hdwy	-	-	4.14	-	6.86
Critical Hdwy Stg 1	-	-	-	-	5.86
Critical Hdwy Stg 2	-	-	-	-	5.86
Follow-up Hdwy	-	-	2.22	-	3.53
Pot Cap-1 Maneuver	-	0	1267	-	407
Stage 1	-	0	-	-	729
Stage 2	-	0	-	-	685
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1267	-	384
Mov Cap-2 Maneuver	-	-	-	-	384
Stage 1	-	-	-	-	729
Stage 2	-	-	-	-	647

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	30.6
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	384	875	-	1267	-
HCM Lane V/C Ratio	0.744	0.103	-	0.056	-
HCM Control Delay (s)	37.2	9.6	-	8	-
HCM Lane LOS	E	A	-	A	-
HCM 95th %tile Q(veh)	5.9	0.3	-	0.2	-

HCM 6th AWSC
 10: Wilbur Avenue & Melrose Street

10/28/2020

Intersection	
Intersection Delay, s/veh	13.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	74	56	75	32	84	35	80	227	18	19	215	59
Future Vol, veh/h	74	56	75	32	84	35	80	227	18	19	215	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	7	6	4	2	2	3	2	3	6	11	2	2
Mvmt Flow	78	59	79	34	88	37	84	239	19	20	226	62
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.5	11.5	15.1	14.2
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	36%	21%	6%
Vol Thru, %	70%	27%	56%	73%
Vol Right, %	6%	37%	23%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	325	205	151	293
LT Vol	80	74	32	19
Through Vol	227	56	84	215
RT Vol	18	75	35	59
Lane Flow Rate	342	216	159	308
Geometry Grp	1	1	1	1
Degree of Util (X)	0.535	0.361	0.27	0.49
Departure Headway (Hd)	5.634	6.024	6.12	5.716
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	636	591	582	626
Service Time	3.709	4.113	4.217	3.793
HCM Lane V/C Ratio	0.538	0.365	0.273	0.492
HCM Control Delay	15.1	12.5	11.5	14.2
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.2	1.6	1.1	2.7

MOVEMENT SUMMARY

 Site: 11 [PM 2023 Without Project (Site Folder: General)]

Myra Road / Heritage Road / Pine Street Intersection
 Site Category: Roundabout Intersection
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: Myra Road														
3	L2	8	2.0	8	2.0	0.153	9.5	LOS A	0.8	20.7	0.36	0.36	0.36	35.7
8	T1	326	4.0	343	4.0	0.153	3.0	LOS A	0.8	21.3	0.35	0.36	0.35	34.0
18	R2	73	2.0	77	2.0	0.153	3.5	LOS A	0.8	21.3	0.34	0.36	0.34	30.8
Approach		407	3.6	428	3.6	0.153	3.2	LOS A	0.8	21.3	0.35	0.36	0.35	33.4
East: Pine Street														
1	L2	68	2.0	72	2.0	0.202	8.3	LOS A	0.8	19.5	0.41	0.49	0.41	31.6
6	T1	63	2.0	66	2.0	0.202	2.1	LOS A	0.8	19.5	0.41	0.49	0.41	32.5
16	R2	78	2.0	82	2.0	0.202	2.9	LOS A	0.8	19.5	0.41	0.49	0.41	30.2
Approach		209	2.0	220	2.0	0.202	4.4	LOS A	0.8	19.5	0.41	0.49	0.41	31.3
North: Myra Road														
7	L2	53	2.0	56	2.0	0.185	9.3	LOS A	1.0	26.0	0.33	0.41	0.33	32.3
4	T1	353	2.0	372	2.0	0.185	2.8	LOS A	1.1	26.8	0.32	0.38	0.32	33.9
14	R2	108	2.0	114	2.0	0.185	3.4	LOS A	1.1	26.8	0.31	0.35	0.31	34.5
Approach		514	2.0	541	2.0	0.185	3.6	LOS A	1.1	26.8	0.32	0.37	0.32	33.8
West: Heritage Road														
5	L2	78	2.0	82	2.0	0.155	11.3	LOS B	0.6	14.3	0.41	0.64	0.41	34.8
2	T1	54	2.0	57	2.0	0.155	4.7	LOS A	0.6	14.3	0.41	0.64	0.41	32.2
12	R2	24	2.0	25	2.0	0.155	4.9	LOS A	0.6	14.3	0.41	0.64	0.41	33.1
Approach		156	2.0	164	2.0	0.155	8.0	LOS A	0.6	14.3	0.41	0.64	0.41	33.6
All Vehicles		1286	2.5	1354	2.5	0.202	4.1	LOS A	1.1	26.8	0.35	0.42	0.35	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	7	6	0	0	2	25	21	0	31	0
Future Vol, veh/h	0	0	7	6	0	0	2	25	21	0	31	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	12	2	2	2	2
Mvmt Flow	0	0	8	7	0	0	2	28	24	0	35	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	79	91	35	83	79	40	35	0	0	52	0	0
Stage 1	35	35	-	44	44	-	-	-	-	-	-	-
Stage 2	44	56	-	39	35	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	910	799	1038	904	811	1031	1576	-	-	1554	-	-
Stage 1	981	866	-	970	858	-	-	-	-	-	-	-
Stage 2	970	848	-	976	866	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	909	798	1038	897	810	1031	1576	-	-	1554	-	-
Mov Cap-2 Maneuver	909	798	-	897	810	-	-	-	-	-	-	-
Stage 1	980	866	-	969	857	-	-	-	-	-	-	-
Stage 2	969	847	-	969	866	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9	0.3	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1576	-	-	1038	897	1554	-
HCM Lane V/C Ratio	0.001	-	-	0.008	0.008	-	-
HCM Control Delay (s)	7.3	0	-	8.5	9	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	39	20	0	0	14	48	70	0	44	0
Future Vol, veh/h	0	0	39	20	0	0	14	48	70	0	44	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	12	2	2	2	2
Mvmt Flow	0	0	44	23	0	0	16	55	80	0	50	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	177	217	50	199	177	95	50	0	0	135	0	0
Stage 1	50	50	-	127	127	-	-	-	-	-	-	-
Stage 2	127	167	-	72	50	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	785	681	1018	760	717	962	1557	-	-	1449	-	-
Stage 1	963	853	-	877	791	-	-	-	-	-	-	-
Stage 2	877	760	-	938	853	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	779	674	1018	720	709	962	1557	-	-	1449	-	-
Mov Cap-2 Maneuver	779	674	-	720	709	-	-	-	-	-	-	-
Stage 1	952	853	-	867	782	-	-	-	-	-	-	-
Stage 2	867	752	-	897	853	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	10.2	0.8	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1557	-	-	1018	720	1449	-
HCM Lane V/C Ratio	0.01	-	-	0.044	0.032	-	-
HCM Control Delay (s)	7.3	0	-	8.7	10.2	0	-
HCM Lane LOS	A	A	-	A	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	5	23	0	0	8	62	11	0	28	0
Future Vol, veh/h	0	0	5	23	0	0	8	62	11	0	28	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	17	2
Mvmt Flow	0	0	6	26	0	0	9	70	13	0	32	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	127	133	32	130	127	77	32	0	0	83	0	0
Stage 1	32	32	-	95	95	-	-	-	-	-	-	-
Stage 2	95	101	-	35	32	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	846	758	1042	843	764	984	1580	-	-	1514	-	-
Stage 1	984	868	-	912	816	-	-	-	-	-	-	-
Stage 2	912	811	-	981	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	842	753	1042	835	759	984	1580	-	-	1514	-	-
Mov Cap-2 Maneuver	842	753	-	835	759	-	-	-	-	-	-	-
Stage 1	978	868	-	907	811	-	-	-	-	-	-	-
Stage 2	907	806	-	976	868	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		9.5		0.7		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1580	-	-	1042	835	1514	-
HCM Lane V/C Ratio	0.006	-	-	0.005	0.031	-	-
HCM Control Delay (s)	7.3	0	-	8.5	9.5	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	26	72	0	0	44	81	37	0	56	0
Future Vol, veh/h	0	0	26	72	0	0	44	81	37	0	56	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	17	2
Mvmt Flow	0	0	30	82	0	0	50	92	42	0	64	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	277	298	64	292	277	113	64	0	0	134	0	0
Stage 1	64	64	-	213	213	-	-	-	-	-	-	-
Stage 2	213	234	-	79	64	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	675	614	1000	660	631	940	1538	-	-	1451	-	-
Stage 1	947	842	-	789	726	-	-	-	-	-	-	-
Stage 2	789	711	-	930	842	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	657	593	1000	624	609	940	1538	-	-	1451	-	-
Mov Cap-2 Maneuver	657	593	-	624	609	-	-	-	-	-	-	-
Stage 1	914	842	-	761	701	-	-	-	-	-	-	-
Stage 2	761	686	-	903	842	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.7		11.6		2		0	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1538	-	-	1000	624	1451	-
HCM Lane V/C Ratio	0.033	-	-	0.03	0.131	-	-
HCM Control Delay (s)	7.4	0	-	8.7	11.6	0	-
HCM Lane LOS	A	A	-	A	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.5	0	-

HCM 6th TWSC
 3: Lower Waitsburg Road & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		T			T
Traffic Vol, veh/h	54	13	149	43	17	137
Future Vol, veh/h	54	13	149	43	17	137
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	5	17	0
Mvmt Flow	59	14	162	47	18	149

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	371	186	0	0	209
Stage 1	186	-	-	-	-
Stage 2	185	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.27
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.353
Pot Cap-1 Maneuver	630	856	-	-	1277
Stage 1	846	-	-	-	-
Stage 2	847	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	621	856	-	-	1277
Mov Cap-2 Maneuver	621	-	-	-	-
Stage 1	846	-	-	-	-
Stage 2	834	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	656	1277
HCM Lane V/C Ratio	-	-	0.111	0.014
HCM Control Delay (s)	-	-	11.2	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0

HCM 6th TWSC
 4: Lower Waitsburg Road & US Highway 12

10/28/2020

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↗	↘	↗↗	↗				↗		↗
Traffic Vol, veh/h	166	449	82	25	596	26	0	0	38	0	0	190
Future Vol, veh/h	166	449	82	25	596	26	0	0	38	0	0	190
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	Stop
Storage Length	250	-	0	150	-	20	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	2	2	4	12	2	2	6	2	2	3
Mvmt Flow	175	473	86	26	627	27	0	0	40	0	0	200

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	654	0	-	473	0	0	-	-	237	-	-	314
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.18	-	-	4.14	-	-	-	-	7.02	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.24	-	-	2.22	-	-	-	-	3.36	-	-	3.33
Pot Cap-1 Maneuver	915	-	0	1085	-	-	0	0	752	0	0	679
Stage 1	-	-	0	-	-	-	0	0	-	0	0	-
Stage 2	-	-	0	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-			-	-						
Mov Cap-1 Maneuver	915	-	-	1085	-	-	-	-	752	-	-	679
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	2.7		0.3		10.1			12.5		
HCM LOS					B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	752	915	-	1085	-	-	679
HCM Lane V/C Ratio	0.053	0.191	-	0.024	-	-	0.295
HCM Control Delay (s)	10.1	9.9	-	8.4	-	-	12.5
HCM Lane LOS	B	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.7	-	0.1	-	-	1.2

HCM 6th TWSC
5: Blue Mountain Drive & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	13	90	19	11	41	11
Future Vol, veh/h	13	90	19	11	41	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	16	2	12	2	2
Mvmt Flow	15	101	21	12	46	12

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	116	0	120
Stage 1	-	-	-	-	66
Stage 2	-	-	-	-	54
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1473	-	876
Stage 1	-	-	-	-	957
Stage 2	-	-	-	-	969
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1473	-	864
Mov Cap-2 Maneuver	-	-	-	-	864
Stage 1	-	-	-	-	957
Stage 2	-	-	-	-	955

Approach	EB	WB	NB
HCM Control Delay, s	0	4.7	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	889	-	-	1473	-
HCM Lane V/C Ratio	0.066	-	-	0.014	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
6: Blue Mountain Drive & Rainier Street

10/28/2020

Intersection												
Int Delay, s/veh	5.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	37	48	5	0	39	10	4	5	0	25	21	63
Future Vol, veh/h	37	48	5	0	39	10	4	5	0	25	21	63
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	56	6	0	45	12	5	6	0	29	24	73

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	57	0	0	64	0	0	247	204	61	199	201	51
Stage 1	-	-	-	-	-	-	147	147	-	51	51	-
Stage 2	-	-	-	-	-	-	100	57	-	148	150	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1547	-	-	1538	-	-	707	692	1004	760	695	1017
Stage 1	-	-	-	-	-	-	856	775	-	962	852	-
Stage 2	-	-	-	-	-	-	906	847	-	855	773	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1547	-	-	1535	-	-	623	671	1002	738	673	1017
Mov Cap-2 Maneuver	-	-	-	-	-	-	623	671	-	738	673	-
Stage 1	-	-	-	-	-	-	829	751	-	934	852	-
Stage 2	-	-	-	-	-	-	817	847	-	824	749	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3			0			10.6			9.9		
HCM LOS							B			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	649	1547	-	-	1535	-	-	858
HCM Lane V/C Ratio	0.016	0.028	-	-	-	-	-	0.148
HCM Control Delay (s)	10.6	7.4	0	-	0	-	-	9.9
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.5

HCM 6th TWSC
7: Wellington Avenue & Melrose Street

10/28/2020

Intersection												
Int Delay, s/veh	7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	59	141	19	18	137	56	10	54	10	59	62	43
Future Vol, veh/h	59	141	19	18	137	56	10	54	10	59	62	43
Conflicting Peds, #/hr	1	0	6	6	0	1	2	0	3	3	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	5
Mvmt Flow	64	153	21	20	149	61	11	59	11	64	67	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	211	0	0	180	0	0	577	549	173	551	529	183
Stage 1	-	-	-	-	-	-	298	298	-	221	221	-
Stage 2	-	-	-	-	-	-	279	251	-	330	308	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.345
Pot Cap-1 Maneuver	1360	-	-	1396	-	-	428	443	871	445	455	852
Stage 1	-	-	-	-	-	-	711	667	-	781	720	-
Stage 2	-	-	-	-	-	-	728	699	-	683	660	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1359	-	-	1388	-	-	334	410	864	370	421	850
Mov Cap-2 Maneuver	-	-	-	-	-	-	334	410	-	370	421	-
Stage 1	-	-	-	-	-	-	670	628	-	740	708	-
Stage 2	-	-	-	-	-	-	611	687	-	578	622	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.7			15.4			17.7		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	427	1359	-	-	1388	-	-	459
HCM Lane V/C Ratio	0.188	0.047	-	-	0.014	-	-	0.388
HCM Control Delay (s)	15.4	7.8	0	-	7.6	0	-	17.7
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0	-	-	1.8

HCM 6th TWSC
8: Isaacs Avenue & Wellington Avenue

10/28/2020

Intersection						
Int Delay, s/veh	2.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Vol, veh/h	63	417	404	20	32	80
Future Vol, veh/h	63	417	404	20	32	80
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	60
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	453	439	22	35	87

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	461	0	0	813	232
Stage 1	-	-	-	450	-
Stage 2	-	-	-	363	-
Critical Hdwy	4.14	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	5.84	-
Follow-up Hdwy	2.22	-	-	3.52	3.32
Pot Cap-1 Maneuver	1096	-	-	316	770
Stage 1	-	-	-	609	-
Stage 2	-	-	-	674	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	1096	-	-	290	769
Mov Cap-2 Maneuver	-	-	-	290	-
Stage 1	-	-	-	558	-
Stage 2	-	-	-	674	-

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1096	-	-	-	290	769
HCM Lane V/C Ratio	0.062	-	-	-	0.12	0.113
HCM Control Delay (s)	8.5	0.3	-	-	19.1	10.3
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4	0.4

Intersection						
Int Delay, s/veh	11					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	269	226	65	378	268	85
Future Vol, veh/h	269	226	65	378	268	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	Free	-	Stop
Storage Length	-	245	225	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	3	2	3	3	2
Mvmt Flow	292	246	71	411	291	92

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	292	0	640 146
Stage 1	-	-	-	-	292 -
Stage 2	-	-	-	-	348 -
Critical Hdwy	-	-	4.14	-	6.86 6.94
Critical Hdwy Stg 1	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	5.86 -
Follow-up Hdwy	-	-	2.22	-	3.53 3.32
Pot Cap-1 Maneuver	-	0	1267	-	406 875
Stage 1	-	0	-	-	729 -
Stage 2	-	0	-	-	683 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1267	-	383 875
Mov Cap-2 Maneuver	-	-	-	-	383 -
Stage 1	-	-	-	-	729 -
Stage 2	-	-	-	-	645 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	31.8
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	383	875	-	1267	-
HCM Lane V/C Ratio	0.761	0.106	-	0.056	-
HCM Control Delay (s)	38.8	9.6	-	8	-
HCM Lane LOS	E	A	-	A	-
HCM 95th %tile Q(veh)	6.2	0.4	-	0.2	-

HCM 6th AWSC
 10: Wilbur Avenue & Melrose Street

10/28/2020

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	76	58	76	32	84	37	80	230	18	19	215	59
Future Vol, veh/h	76	58	76	32	84	37	80	230	18	19	215	59
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	7	6	4	2	2	3	2	3	6	11	2	2
Mvmt Flow	80	61	80	34	88	39	84	242	19	20	226	62
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.7	11.6	15.4	14.4
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	36%	21%	6%
Vol Thru, %	70%	28%	55%	73%
Vol Right, %	5%	36%	24%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	328	210	153	293
LT Vol	80	76	32	19
Through Vol	230	58	84	215
RT Vol	18	76	37	59
Lane Flow Rate	345	221	161	308
Geometry Grp	1	1	1	1
Degree of Util (X)	0.544	0.372	0.275	0.493
Departure Headway (Hd)	5.667	6.053	6.15	5.755
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	632	590	578	620
Service Time	3.746	4.145	4.25	3.838
HCM Lane V/C Ratio	0.546	0.375	0.279	0.497
HCM Control Delay	15.4	12.7	11.6	14.4
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.3	1.7	1.1	2.7

MOVEMENT SUMMARY

 Site: 11 [PM 2023 With Project Trips (Site Folder: General)]

Myra Road / Heritage Road / Pine Street Intersection
 Site Category: Roundabout Intersection
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Myra Road														
3	L2	8	2.0	8	2.0	0.157	9.5	LOS A	0.8	21.5	0.36	0.36	0.36	35.7
8	T1	339	4.0	357	4.0	0.157	3.0	LOS A	0.9	22.1	0.35	0.36	0.35	34.0
18	R2	73	2.0	77	2.0	0.157	3.5	LOS A	0.9	22.1	0.34	0.36	0.34	30.8
Approach		420	3.6	442	3.6	0.157	3.2	LOS A	0.9	22.1	0.35	0.36	0.35	33.4
East: Pine Street														
1	L2	68	2.0	72	2.0	0.204	8.3	LOS A	0.8	19.6	0.41	0.49	0.41	31.6
6	T1	63	2.0	66	2.0	0.204	2.1	LOS A	0.8	19.6	0.41	0.49	0.41	32.5
16	R2	78	2.0	82	2.0	0.204	2.9	LOS A	0.8	19.6	0.41	0.49	0.41	30.2
Approach		209	2.0	220	2.0	0.204	4.4	LOS A	0.8	19.6	0.41	0.49	0.41	31.3
North: Myra Road														
7	L2	53	2.0	56	2.0	0.188	9.3	LOS A	1.0	26.5	0.33	0.40	0.33	32.3
4	T1	361	2.0	380	2.0	0.188	2.8	LOS A	1.1	27.3	0.32	0.38	0.32	33.9
14	R2	108	2.0	114	2.0	0.188	3.4	LOS A	1.1	27.3	0.31	0.35	0.31	34.5
Approach		522	2.0	549	2.0	0.188	3.6	LOS A	1.1	27.3	0.32	0.37	0.32	33.8
West: Heritage Road														
5	L2	78	2.0	82	2.0	0.155	11.4	LOS B	0.6	14.4	0.42	0.64	0.42	34.8
2	T1	54	2.0	57	2.0	0.155	4.7	LOS A	0.6	14.4	0.42	0.64	0.42	32.1
12	R2	24	2.0	25	2.0	0.155	4.9	LOS A	0.6	14.4	0.42	0.64	0.42	33.1
Approach		156	2.0	164	2.0	0.155	8.0	LOS A	0.6	14.4	0.42	0.64	0.42	33.6
All Vehicles		1307	2.5	1376	2.5	0.204	4.1	LOS A	1.1	27.3	0.35	0.42	0.35	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC
 1: Lower Waitsburg Road & Northern Subdivision Access

10/28/2020

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	6	0	25	21	0	32
Future Vol, veh/h	6	0	25	21	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	12	2	2	2
Mvmt Flow	7	0	28	24	0	36

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	76	40	0	0	52	0
Stage 1	40	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	927	1031	-	-	1554	-
Stage 1	982	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	927	1031	-	-	1554	-
Mov Cap-2 Maneuver	927	-	-	-	-	-
Stage 1	982	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	927	1554
HCM Lane V/C Ratio	-	-	0.007	-
HCM Control Delay (s)	-	-	8.9	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	0	46	70	0	38
Future Vol, veh/h	20	0	46	70	0	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	12	2	2	2
Mvmt Flow	23	0	52	80	0	43

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	135	92	0	0	132	0
Stage 1	92	-	-	-	-	-
Stage 2	43	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	859	965	-	-	1453	-
Stage 1	932	-	-	-	-	-
Stage 2	979	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	859	965	-	-	1453	-
Mov Cap-2 Maneuver	859	-	-	-	-	-
Stage 1	932	-	-	-	-	-
Stage 2	979	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	859	1453
HCM Lane V/C Ratio	-	-	0.026	-
HCM Control Delay (s)	-	-	9.3	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC

1: Lower Waitsburg Road & Northern Subdivision Access

10/28/2020

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	0	63	11	0	28
Future Vol, veh/h	23	0	63	11	0	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	2	2	17
Mvmt Flow	26	0	72	13	0	32

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	111	79	0	0	85	0
Stage 1	79	-	-	-	-	-
Stage 2	32	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	886	981	-	-	1512	-
Stage 1	944	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	886	981	-	-	1512	-
Mov Cap-2 Maneuver	886	-	-	-	-	-
Stage 1	944	-	-	-	-	-
Stage 2	991	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	886	1512
HCM Lane V/C Ratio	-	-	0.029	-
HCM Control Delay (s)	-	-	9.2	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	0	74	37	0	51
Future Vol, veh/h	72	0	74	37	0	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	2	2	17
Mvmt Flow	82	0	84	42	0	58

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	163	105	0	0	126	0
Stage 1	105	-	-	-	-	-
Stage 2	58	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	828	949	-	-	1460	-
Stage 1	919	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	828	949	-	-	1460	-
Mov Cap-2 Maneuver	828	-	-	-	-	-
Stage 1	919	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	828	1460
HCM Lane V/C Ratio	-	-	0.099	-
HCM Control Delay (s)	-	-	9.8	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 6th TWSC
 3: Lower Waitsburg Road & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	55	10	101	44	11	112
Future Vol, veh/h	55	10	101	44	11	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	5	17	0
Mvmt Flow	60	11	110	48	12	122

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	280	134	0	0	158
Stage 1	134	-	-	-	-
Stage 2	146	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.27
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.353
Pot Cap-1 Maneuver	710	915	-	-	1335
Stage 1	892	-	-	-	-
Stage 2	881	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	703	915	-	-	1335
Mov Cap-2 Maneuver	703	-	-	-	-
Stage 1	892	-	-	-	-
Stage 2	872	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	729	1335
HCM Lane V/C Ratio	-	-	0.097	0.009
HCM Control Delay (s)	-	-	10.5	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 6th TWSC
4: Lower Waitsburg Road & US Highway 12

10/28/2020

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↗	↘	↗↗	↗			↗			↗
Traffic Vol, veh/h	127	458	84	25	607	18	0	0	39	0	0	167
Future Vol, veh/h	127	458	84	25	607	18	0	0	39	0	0	167
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	Stop
Storage Length	250	-	0	150	-	20	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	2	2	4	12	2	2	6	2	2	3
Mvmt Flow	134	482	88	26	639	19	0	0	41	0	0	176

Major/Minor	Major1		Major2		Minor1		Minor2	
Conflicting Flow All	658	0	-	482	0	0	-	241
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	4.18	-	-	4.14	-	-	-	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.24	-	-	2.22	-	-	-	3.36
Pot Cap-1 Maneuver	912	-	0	1077	-	0	0	748
Stage 1	-	-	0	-	-	0	0	-
Stage 2	-	-	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	912	-	-	1077	-	-	-	748
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0.3	10.1	12.2
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	748	912	-	1077	-	-	673
HCM Lane V/C Ratio	0.055	0.147	-	0.024	-	-	0.261
HCM Control Delay (s)	10.1	9.6	-	8.4	-	-	12.2
HCM Lane LOS	B	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.5	-	0.1	-	-	1

HCM 6th TWSC
 5: Blue Mountain Drive & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	13	85	19	11	38	12
Future Vol, veh/h	13	85	19	11	38	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	16	2	12	2	2
Mvmt Flow	15	96	21	12	43	13

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	111	0	117
Stage 1	-	-	-	-	63
Stage 2	-	-	-	-	54
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1479	-	879
Stage 1	-	-	-	-	960
Stage 2	-	-	-	-	969
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1479	-	867
Mov Cap-2 Maneuver	-	-	-	-	867
Stage 1	-	-	-	-	960
Stage 2	-	-	-	-	955

Approach	EB	WB	NB
HCM Control Delay, s	0	4.7	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	896	-	-	1479	-
HCM Lane V/C Ratio	0.063	-	-	0.014	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
6: Blue Mountain Drive & Rainier Street

10/28/2020

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	34	49	5	0	40	11	4	5	0	25	21	58
Future Vol, veh/h	34	49	5	0	40	11	4	5	0	25	21	58
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	57	6	0	47	13	5	6	0	29	24	67

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	60	0	0	65	0	0	241	202	62	197	199	54
Stage 1	-	-	-	-	-	-	142	142	-	54	54	-
Stage 2	-	-	-	-	-	-	99	60	-	143	145	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1544	-	-	1537	-	-	713	694	1003	762	697	1013
Stage 1	-	-	-	-	-	-	861	779	-	958	850	-
Stage 2	-	-	-	-	-	-	907	845	-	860	777	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1544	-	-	1534	-	-	632	674	1001	741	677	1013
Mov Cap-2 Maneuver	-	-	-	-	-	-	632	674	-	741	677	-
Stage 1	-	-	-	-	-	-	836	756	-	932	850	-
Stage 2	-	-	-	-	-	-	822	845	-	830	754	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0	10.6	9.9
HCM LOS			B	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	655	1544	-	-	1534	-	-	852
HCM Lane V/C Ratio	0.016	0.026	-	-	-	-	-	0.142
HCM Control Delay (s)	10.6	7.4	0	-	0	-	-	9.9
HCM Lane LOS	B	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.5

HCM 6th TWSC
7: Wellington Avenue & Melrose Street

10/28/2020

Intersection												
Int Delay, s/veh	6.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	60	144	19	18	140	57	11	52	11	55	62	44
Future Vol, veh/h	60	144	19	18	140	57	11	52	11	55	62	44
Conflicting Peds, #/hr	1	0	6	6	0	1	2	0	3	3	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	5
Mvmt Flow	65	157	21	20	152	62	12	57	12	60	67	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	215	0	0	184	0	0	587	559	177	559	538	186
Stage 1	-	-	-	-	-	-	304	304	-	224	224	-
Stage 2	-	-	-	-	-	-	283	255	-	335	314	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.345
Pot Cap-1 Maneuver	1355	-	-	1391	-	-	421	438	866	440	450	849
Stage 1	-	-	-	-	-	-	705	663	-	779	718	-
Stage 2	-	-	-	-	-	-	724	696	-	679	656	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1354	-	-	1383	-	-	328	405	859	366	416	847
Mov Cap-2 Maneuver	-	-	-	-	-	-	328	405	-	366	416	-
Stage 1	-	-	-	-	-	-	664	624	-	737	705	-
Stage 2	-	-	-	-	-	-	606	683	-	575	617	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.6			15.5			17.6		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	423	1354	-	-	1383	-	-	458
HCM Lane V/C Ratio	0.19	0.048	-	-	0.014	-	-	0.382
HCM Control Delay (s)	15.5	7.8	0	-	7.6	0	-	17.6
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0	-	-	1.8

HCM 6th TWSC
8: Isaacs Avenue & Wellington Avenue

10/28/2020

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	↑
Traffic Vol, veh/h	61	426	412	20	33	81
Future Vol, veh/h	61	426	412	20	33	81
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	60
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	66	463	448	22	36	88

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	470	0	-	0	823
Stage 1	-	-	-	-	459
Stage 2	-	-	-	-	364
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1088	-	-	-	312
Stage 1	-	-	-	-	603
Stage 2	-	-	-	-	673
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1088	-	-	-	286
Mov Cap-2 Maneuver	-	-	-	-	286
Stage 1	-	-	-	-	554
Stage 2	-	-	-	-	673

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	12.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1088	-	-	-	286	765
HCM Lane V/C Ratio	0.061	-	-	-	0.125	0.115
HCM Control Delay (s)	8.5	0.3	-	-	19.4	10.3
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4	0.4

Intersection						
Int Delay, s/veh	11.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	274	230	66	383	268	85
Future Vol, veh/h	274	230	66	383	268	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	Free	-	Stop
Storage Length	-	245	225	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	3	2	3	3	2
Mvmt Flow	298	250	72	416	291	92

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	298	0	650
Stage 1	-	-	-	-	298
Stage 2	-	-	-	-	352
Critical Hdwy	-	-	4.14	-	6.86
Critical Hdwy Stg 1	-	-	-	-	5.86
Critical Hdwy Stg 2	-	-	-	-	5.86
Follow-up Hdwy	-	-	2.22	-	3.53
Pot Cap-1 Maneuver	-	0	1260	-	400
Stage 1	-	0	-	-	724
Stage 2	-	0	-	-	680
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1260	-	377
Mov Cap-2 Maneuver	-	-	-	-	377
Stage 1	-	-	-	-	724
Stage 2	-	-	-	-	641

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	33.1
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	377	871	-	1260	-
HCM Lane V/C Ratio	0.773	0.106	-	0.057	-
HCM Control Delay (s)	40.5	9.6	-	8	-
HCM Lane LOS	E	A	-	A	-
HCM 95th %tile Q(veh)	6.4	0.4	-	0.2	-

HCM 6th AWSC
 10: Wilbur Avenue & Melrose Street

10/28/2020

Intersection	
Intersection Delay, s/veh	14.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	76	57	76	33	86	36	82	231	18	19	220	60
Future Vol, veh/h	76	57	76	33	86	36	82	231	18	19	220	60
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	7	6	4	2	2	3	2	3	6	11	2	2
Mvmt Flow	80	60	80	35	91	38	86	243	19	20	232	63
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.9	11.8	15.7	14.7
HCM LOS	B	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	36%	21%	6%
Vol Thru, %	70%	27%	55%	74%
Vol Right, %	5%	36%	23%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	331	209	155	299
LT Vol	82	76	33	19
Through Vol	231	57	86	220
RT Vol	18	76	36	60
Lane Flow Rate	348	220	163	315
Geometry Grp	1	1	1	1
Degree of Util (X)	0.551	0.379	0.285	0.505
Departure Headway (Hd)	5.798	6.195	6.294	5.883
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	627	585	573	617
Service Time	3.798	4.195	4.305	3.883
HCM Lane V/C Ratio	0.555	0.376	0.284	0.511
HCM Control Delay	15.7	12.9	11.8	14.7
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.4	1.8	1.2	2.8

MOVEMENT SUMMARY

 Site: 11 [PM 2025 Without Project (Site Folder: General)]

Myra Road / Heritage Road / Pine Street Intersection
 Site Category: Roundabout Intersection
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Myra Road														
3	L2	8	2.0	8	2.0	0.156	9.5	LOS A	0.8	21.3	0.37	0.36	0.37	35.7
8	T1	332	4.0	349	4.0	0.156	3.0	LOS A	0.9	21.9	0.36	0.36	0.36	34.0
18	R2	75	2.0	79	2.0	0.156	3.5	LOS A	0.9	21.9	0.34	0.36	0.34	30.8
Approach		415	3.6	437	3.6	0.156	3.2	LOS A	0.9	21.9	0.35	0.36	0.35	33.4
East: Pine Street														
1	L2	69	2.0	73	2.0	0.207	8.3	LOS A	0.8	20.0	0.41	0.49	0.41	31.6
6	T1	64	2.0	67	2.0	0.207	2.1	LOS A	0.8	20.0	0.41	0.49	0.41	32.5
16	R2	80	2.0	84	2.0	0.207	2.9	LOS A	0.8	20.0	0.41	0.49	0.41	30.2
Approach		213	2.0	224	2.0	0.207	4.4	LOS A	0.8	20.0	0.41	0.49	0.41	31.3
North: Myra Road														
7	L2	54	2.0	57	2.0	0.188	9.3	LOS A	1.0	26.6	0.33	0.41	0.33	32.3
4	T1	359	2.0	378	2.0	0.188	2.8	LOS A	1.1	27.4	0.32	0.38	0.32	33.9
14	R2	110	2.0	116	2.0	0.188	3.4	LOS A	1.1	27.4	0.31	0.35	0.31	34.5
Approach		523	2.0	551	2.0	0.188	3.6	LOS A	1.1	27.4	0.32	0.38	0.32	33.8
West: Heritage Road														
5	L2	80	2.0	84	2.0	0.158	11.4	LOS B	0.6	14.7	0.42	0.64	0.42	34.7
2	T1	55	2.0	58	2.0	0.158	4.7	LOS A	0.6	14.7	0.42	0.64	0.42	32.1
12	R2	24	2.0	25	2.0	0.158	4.9	LOS A	0.6	14.7	0.42	0.64	0.42	33.1
Approach		159	2.0	167	2.0	0.158	8.1	LOS A	0.6	14.7	0.42	0.64	0.42	33.5
All Vehicles		1310	2.5	1379	2.5	0.207	4.2	LOS A	1.1	27.4	0.36	0.42	0.36	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC

1: Lower Waitsburg Road & Northern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	14	6	0	0	5	25	21	0	32	0
Future Vol, veh/h	0	0	14	6	0	0	5	25	21	0	32	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	12	2	2	2	2
Mvmt Flow	0	0	16	7	0	0	6	28	24	0	36	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	88	100	36	96	88	40	36	0	0	52	0	0
Stage 1	36	36	-	52	52	-	-	-	-	-	-	-
Stage 2	52	64	-	44	36	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	897	790	1037	887	802	1031	1575	-	-	1554	-	-
Stage 1	980	865	-	961	852	-	-	-	-	-	-	-
Stage 2	961	842	-	970	865	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	894	787	1037	871	799	1031	1575	-	-	1554	-	-
Mov Cap-2 Maneuver	894	787	-	871	799	-	-	-	-	-	-	-
Stage 1	976	865	-	957	849	-	-	-	-	-	-	-
Stage 2	957	839	-	955	865	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9.2	0.7	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	1037	871	1554	-
HCM Lane V/C Ratio	0.004	-	-	0.015	0.008	-	-
HCM Control Delay (s)	7.3	0	-	8.5	9.2	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0	-

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	3.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	77	20	0	0	26	51	70	0	52	0
Future Vol, veh/h	0	0	77	20	0	0	26	51	70	0	52	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	12	2	2	2	2
Mvmt Flow	0	0	88	23	0	0	30	58	80	0	59	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	217	257	59	261	217	98	59	0	0	138	0	0
Stage 1	59	59	-	158	158	-	-	-	-	-	-	-
Stage 2	158	198	-	103	59	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	739	647	1007	692	681	958	1545	-	-	1446	-	-
Stage 1	953	846	-	844	767	-	-	-	-	-	-	-
Stage 2	844	737	-	903	846	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	727	633	1007	621	667	958	1545	-	-	1446	-	-
Mov Cap-2 Maneuver	727	633	-	621	667	-	-	-	-	-	-	-
Stage 1	933	846	-	826	751	-	-	-	-	-	-	-
Stage 2	826	722	-	825	846	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.9	11	1.3	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1545	-	-	1007	621	1446	-
HCM Lane V/C Ratio	0.019	-	-	0.087	0.037	-	-
HCM Control Delay (s)	7.4	0	-	8.9	11	0	-
HCM Lane LOS	A	A	-	A	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0	-

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	14	23	0	0	23	71	11	0	32	0
Future Vol, veh/h	0	0	14	23	0	0	23	71	11	0	32	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	17	2
Mvmt Flow	0	0	16	26	0	0	26	81	13	0	36	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	176	182	36	184	176	88	36	0	0	94	0	0
Stage 1	36	36	-	140	140	-	-	-	-	-	-	-
Stage 2	140	146	-	44	36	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	786	712	1037	777	717	970	1575	-	-	1500	-	-
Stage 1	980	865	-	863	781	-	-	-	-	-	-	-
Stage 2	863	776	-	970	865	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	776	700	1037	755	705	970	1575	-	-	1500	-	-
Mov Cap-2 Maneuver	776	700	-	755	705	-	-	-	-	-	-	-
Stage 1	963	865	-	848	768	-	-	-	-	-	-	-
Stage 2	848	763	-	955	865	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9.9	1.6	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	1037	755	1500	-
HCM Lane V/C Ratio	0.017	-	-	0.015	0.035	-	-
HCM Control Delay (s)	7.3	0	-	8.5	9.9	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0.1	0	-

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	77	72	0	0	131	105	37	0	69	0
Future Vol, veh/h	0	0	77	72	0	0	131	105	37	0	69	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	17	2
Mvmt Flow	0	0	88	82	0	0	149	119	42	0	78	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	516	537	78	560	516	140	78	0	0	161	0	0
Stage 1	78	78	-	438	438	-	-	-	-	-	-	-
Stage 2	438	459	-	122	78	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	470	450	983	439	463	908	1520	-	-	1418	-	-
Stage 1	931	830	-	597	579	-	-	-	-	-	-	-
Stage 2	597	566	-	882	830	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	431	401	983	367	413	908	1520	-	-	1418	-	-
Mov Cap-2 Maneuver	431	401	-	367	413	-	-	-	-	-	-	-
Stage 1	830	830	-	533	516	-	-	-	-	-	-	-
Stage 2	533	505	-	803	830	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9		17.6		3.7		0	
HCM LOS	A		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1520	-	-	983	367	1418	-	-
HCM Lane V/C Ratio	0.098	-	-	0.089	0.223	-	-	-
HCM Control Delay (s)	7.6	0	-	9	17.6	0	-	-
HCM Lane LOS	A	A	-	A	C	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.3	0.8	0	-	-

HCM 6th TWSC
 3: Lower Waitsburg Road & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	19	254	50	30	188
Future Vol, veh/h	62	19	254	50	30	188
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	5	17	0
Mvmt Flow	67	21	276	54	33	204

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	573	303	0	0	330
Stage 1	303	-	-	-	-
Stage 2	270	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.27
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.353
Pot Cap-1 Maneuver	481	737	-	-	1150
Stage 1	749	-	-	-	-
Stage 2	775	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	466	737	-	-	1150
Mov Cap-2 Maneuver	466	-	-	-	-
Stage 1	749	-	-	-	-
Stage 2	750	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	510	1150
HCM Lane V/C Ratio	-	-	0.173	0.028
HCM Control Delay (s)	-	-	13.5	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↘			↗			↘
Traffic Vol, veh/h	260	516	95	28	685	43	0	0	44	0	0	249
Future Vol, veh/h	260	516	95	28	685	43	0	0	44	0	0	249
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	Stop
Storage Length	250	-	0	150	-	20	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	2	2	4	12	2	2	6	2	2	3
Mvmt Flow	274	543	100	29	721	45	0	0	46	0	0	262

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	766	0	543	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.18	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.24	-	2.22	-
Pot Cap-1 Maneuver	830	0	1022	0
Stage 1	-	0	-	0
Stage 2	-	0	-	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	830	-	1022	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.8	0.3	10.4	14.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	714	830	-	1022	-	-	633
HCM Lane V/C Ratio	0.065	0.33	-	0.029	-	-	0.414
HCM Control Delay (s)	10.4	11.5	-	8.6	-	-	14.6
HCM Lane LOS	B	B	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	1.4	-	0.1	-	-	2

HCM 6th TWSC
5: Blue Mountain Drive & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	14	112	21	12	50	13
Future Vol, veh/h	14	112	21	12	50	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	16	2	12	2	2
Mvmt Flow	16	126	24	13	56	15

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	142	0	140
Stage 1	-	-	-	-	79
Stage 2	-	-	-	-	61
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1441	-	853
Stage 1	-	-	-	-	944
Stage 2	-	-	-	-	962
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1441	-	838
Mov Cap-2 Maneuver	-	-	-	-	838
Stage 1	-	-	-	-	944
Stage 2	-	-	-	-	946

Approach	EB	WB	NB
HCM Control Delay, s	0	4.8	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	864	-	-	1441	-
HCM Lane V/C Ratio	0.082	-	-	0.016	-
HCM Control Delay (s)	9.5	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

HCM 6th TWSC
6: Blue Mountain Drive & Rainier Street

10/28/2020

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	45	56	6	0	45	12	5	6	0	28	24	81
Future Vol, veh/h	45	56	6	0	45	12	5	6	0	28	24	81
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	65	7	0	52	14	6	7	0	33	28	94

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	66	0	0	74	0	0	295	241	71	235	237	59
Stage 1	-	-	-	-	-	-	175	175	-	59	59	-
Stage 2	-	-	-	-	-	-	120	66	-	176	178	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1536	-	-	1526	-	-	657	660	991	720	664	1007
Stage 1	-	-	-	-	-	-	827	754	-	953	846	-
Stage 2	-	-	-	-	-	-	884	840	-	826	752	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1536	-	-	1523	-	-	559	636	989	695	639	1007
Mov Cap-2 Maneuver	-	-	-	-	-	-	559	636	-	695	639	-
Stage 1	-	-	-	-	-	-	796	726	-	920	846	-
Stage 2	-	-	-	-	-	-	775	840	-	789	724	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.1			0			11.1			10.3		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	599	1536	-	-	1523	-	-	840
HCM Lane V/C Ratio	0.021	0.034	-	-	-	-	-	0.184
HCM Control Delay (s)	11.1	7.4	0	-	0	-	-	10.3
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.7

HCM 6th TWSC
7: Wellington Avenue & Melrose Street

10/28/2020

Intersection												
Int Delay, s/veh	9.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	68	162	21	20	158	64	12	67	12	75	73	50
Future Vol, veh/h	68	162	21	20	158	64	12	67	12	75	73	50
Conflicting Peds, #/hr	1	0	6	6	0	1	2	0	3	3	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	5
Mvmt Flow	74	176	23	22	172	70	13	73	13	82	79	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	243	0	0	205	0	0	662	629	197	634	605	210
Stage 1	-	-	-	-	-	-	342	342	-	252	252	-
Stage 2	-	-	-	-	-	-	320	287	-	382	353	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.345
Pot Cap-1 Maneuver	1323	-	-	1366	-	-	375	399	844	392	412	823
Stage 1	-	-	-	-	-	-	673	638	-	752	698	-
Stage 2	-	-	-	-	-	-	692	674	-	640	631	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1322	-	-	1358	-	-	274	364	837	306	376	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	274	364	-	306	376	-
Stage 1	-	-	-	-	-	-	627	594	-	704	684	-
Stage 2	-	-	-	-	-	-	559	661	-	516	587	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.6			18			24.4		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	376	1322	-	-	1358	-	-	396
HCM Lane V/C Ratio	0.263	0.056	-	-	0.016	-	-	0.543
HCM Control Delay (s)	18	7.9	0	-	7.7	0	-	24.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0.2	-	-	0	-	-	3.1

HCM 6th TWSC
8: Isaacs Avenue & Wellington Avenue

10/28/2020

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	↑
Traffic Vol, veh/h	76	480	464	23	37	94
Future Vol, veh/h	76	480	464	23	37	94
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	60
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	522	504	25	40	102

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	529	0	-	0	944
Stage 1	-	-	-	-	517
Stage 2	-	-	-	-	427
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1034	-	-	-	261
Stage 1	-	-	-	-	563
Stage 2	-	-	-	-	626
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1034	-	-	-	232
Mov Cap-2 Maneuver	-	-	-	-	232
Stage 1	-	-	-	-	499
Stage 2	-	-	-	-	626

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1034	-	-	-	232	731
HCM Lane V/C Ratio	0.08	-	-	-	0.173	0.14
HCM Control Delay (s)	8.8	0.4	-	-	23.7	10.7
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.6	0.5

Intersection						
Int Delay, s/veh	27.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	309	259	75	439	317	101
Future Vol, veh/h	309	259	75	439	317	101
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	Free	-	Stop
Storage Length	-	245	225	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	3	2	3	3	2
Mvmt Flow	336	282	82	477	345	110

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	336	0	739
Stage 1	-	-	-	-	336
Stage 2	-	-	-	-	403
Critical Hdwy	-	-	4.14	-	6.86
Critical Hdwy Stg 1	-	-	-	-	5.86
Critical Hdwy Stg 2	-	-	-	-	5.86
Follow-up Hdwy	-	-	2.22	-	3.53
Pot Cap-1 Maneuver	-	0	1220	-	351
Stage 1	-	0	-	-	693
Stage 2	-	0	-	-	641
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1220	-	~ 327
Mov Cap-2 Maneuver	-	-	-	-	~ 327
Stage 1	-	-	-	-	693
Stage 2	-	-	-	-	598

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	79.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	327	847	-	1220	-
HCM Lane V/C Ratio	1.054	0.13	-	0.067	-
HCM Control Delay (s)	101.4	9.9	-	8.2	-
HCM Lane LOS	F	A	-	A	-
HCM 95th %tile Q(veh)	12.5	0.4	-	0.2	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th AWSC
 10: Wilbur Avenue & Melrose Street

10/28/2020

Intersection	
Intersection Delay, s/veh	19.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	90	69	90	37	97	47	92	269	20	21	248	68
Future Vol, veh/h	90	69	90	37	97	47	92	269	20	21	248	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	7	6	4	2	2	3	2	3	6	11	2	2
Mvmt Flow	95	73	95	39	102	49	97	283	21	22	261	72
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.4	14.1	23.2	20.1
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %		24%	36%	20%
Vol Thru, %		71%	28%	54%
Vol Right, %		5%	36%	26%
Sign Control		Stop	Stop	Stop
Traffic Vol by Lane		381	249	181
LT Vol		92	90	37
Through Vol		269	69	97
RT Vol		20	90	47
Lane Flow Rate		401	262	191
Geometry Grp		1	1	1
Degree of Util (X)		0.704	0.494	0.368
Departure Headway (Hd)		6.318	6.782	6.949
Convergence, Y/N		Yes	Yes	Yes
Cap		569	529	514
Service Time		4.393	4.867	5.042
HCM Lane V/C Ratio		0.705	0.495	0.372
HCM Control Delay		23.2	16.4	14.1
HCM Lane LOS		C	C	B
HCM 95th-tile Q		5.6	2.7	1.7

MOVEMENT SUMMARY

Site: 11 [PM 2025 With Project Trips (Site Folder: General)]

Myra Road / Heritage Road / Pine Street Intersection
 Site Category: Roundabout Intersection
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Myra Road														
3	L2	8	2.0	8	2.0	0.166	9.5	LOS A	0.9	22.8	0.37	0.36	0.37	35.7
8	T1	358	4.0	377	4.0	0.166	3.0	LOS A	0.9	23.5	0.36	0.36	0.36	34.0
18	R2	75	2.0	79	2.0	0.166	3.5	LOS A	0.9	23.5	0.35	0.36	0.35	30.8
Approach		441	3.6	464	3.6	0.166	3.2	LOS A	0.9	23.5	0.36	0.36	0.36	33.4
East: Pine Street														
1	L2	69	2.0	73	2.0	0.209	8.4	LOS A	0.8	20.3	0.42	0.50	0.42	31.6
6	T1	64	2.0	67	2.0	0.209	2.2	LOS A	0.8	20.3	0.42	0.50	0.42	32.4
16	R2	80	2.0	84	2.0	0.209	3.0	LOS A	0.8	20.3	0.42	0.50	0.42	30.2
Approach		213	2.0	224	2.0	0.209	4.5	LOS A	0.8	20.3	0.42	0.50	0.42	31.3
North: Myra Road														
7	L2	54	2.0	57	2.0	0.194	9.3	LOS A	1.1	27.6	0.33	0.40	0.33	32.3
4	T1	374	2.0	394	2.0	0.194	2.8	LOS A	1.1	28.5	0.32	0.38	0.32	33.9
14	R2	110	2.0	116	2.0	0.194	3.4	LOS A	1.1	28.5	0.31	0.35	0.31	34.5
Approach		538	2.0	566	2.0	0.194	3.6	LOS A	1.1	28.5	0.32	0.37	0.32	33.8
West: Heritage Road														
5	L2	80	2.0	84	2.0	0.159	11.4	LOS B	0.6	14.8	0.42	0.64	0.42	34.7
2	T1	55	2.0	58	2.0	0.159	4.7	LOS A	0.6	14.8	0.42	0.64	0.42	32.1
12	R2	24	2.0	25	2.0	0.159	4.9	LOS A	0.6	14.8	0.42	0.64	0.42	33.1
Approach		159	2.0	167	2.0	0.159	8.1	LOS A	0.6	14.8	0.42	0.64	0.42	33.5
All Vehicles		1351	2.5	1422	2.5	0.209	4.1	LOS A	1.1	28.5	0.36	0.42	0.36	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC

1: Lower Waitsburg Road & Northern Subdivision Access

10/28/2020

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	6	0	26	21	0	32
Future Vol, veh/h	6	0	26	21	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	12	2	2	2
Mvmt Flow	7	0	30	24	0	36

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	78	42	0	0	54	0
Stage 1	42	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	925	1029	-	-	1551	-
Stage 1	980	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	925	1029	-	-	1551	-
Mov Cap-2 Maneuver	925	-	-	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	925	1551
HCM Lane V/C Ratio	-	-	0.007	-
HCM Control Delay (s)	-	-	8.9	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	0	47	70	0	38
Future Vol, veh/h	20	0	47	70	0	38
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	12	2	2	2
Mvmt Flow	23	0	53	80	0	43

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	136	93	0	0	133
Stage 1	93	-	-	-	-
Stage 2	43	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	857	964	-	-	1452
Stage 1	931	-	-	-	-
Stage 2	979	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	857	964	-	-	1452
Mov Cap-2 Maneuver	857	-	-	-	-
Stage 1	931	-	-	-	-
Stage 2	979	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	857	1452
HCM Lane V/C Ratio	-	-	0.027	-
HCM Control Delay (s)	-	-	9.3	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	1.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	0	64	11	0	29
Future Vol, veh/h	23	0	64	11	0	29
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	2	2	17
Mvmt Flow	26	0	73	13	0	33

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	113	80	0	0	86	0
Stage 1	80	-	-	-	-	-
Stage 2	33	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	884	980	-	-	1510	-
Stage 1	943	-	-	-	-	-
Stage 2	989	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	884	980	-	-	1510	-
Mov Cap-2 Maneuver	884	-	-	-	-	-
Stage 1	943	-	-	-	-	-
Stage 2	989	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.2	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	884	1510
HCM Lane V/C Ratio	-	-	0.03	-
HCM Control Delay (s)	-	-	9.2	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	0	75	37	0	52
Future Vol, veh/h	72	0	75	37	0	52
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	2	2	17
Mvmt Flow	82	0	85	42	0	59

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	165	106	0	0	127
Stage 1	106	-	-	-	-
Stage 2	59	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	826	948	-	-	1459
Stage 1	918	-	-	-	-
Stage 2	964	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	826	948	-	-	1459
Mov Cap-2 Maneuver	826	-	-	-	-
Stage 1	918	-	-	-	-
Stage 2	964	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.8	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	826	1459
HCM Lane V/C Ratio	-	-	0.099	-
HCM Control Delay (s)	-	-	9.8	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 6th TWSC
 3: Lower Waitsburg Road & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	11	102	45	11	113
Future Vol, veh/h	56	11	102	45	11	113
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	5	17	0
Mvmt Flow	61	12	111	49	12	123

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	283	136	0	0	160
Stage 1	136	-	-	-	-
Stage 2	147	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.27
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.353
Pot Cap-1 Maneuver	707	913	-	-	1333
Stage 1	890	-	-	-	-
Stage 2	880	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	700	913	-	-	1333
Mov Cap-2 Maneuver	700	-	-	-	-
Stage 1	890	-	-	-	-
Stage 2	871	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.5	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	728	1333
HCM Lane V/C Ratio	-	-	0.1	0.009
HCM Control Delay (s)	-	-	10.5	7.7
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 6th TWSC
4: Lower Waitsburg Road & US Highway 12

10/28/2020

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↘			↗			↘
Traffic Vol, veh/h	129	467	86	26	620	18	0	0	40	0	0	168
Future Vol, veh/h	129	467	86	26	620	18	0	0	40	0	0	168
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	Stop
Storage Length	250	-	0	150	-	20	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	2	2	4	12	2	2	6	2	2	3
Mvmt Flow	136	492	91	27	653	19	0	0	42	0	0	177

Major/Minor	Major1		Major2		Minor1		Minor2	
Conflicting Flow All	672	0	-	492	0	0	-	246
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-
Critical Hdwy	4.18	-	-	4.14	-	-	-	7.02
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.24	-	-	2.22	-	-	-	3.36
Pot Cap-1 Maneuver	901	-	0	1068	-	0	0	742
Stage 1	-	-	0	-	-	0	0	-
Stage 2	-	-	0	-	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	901	-	-	1068	-	-	-	742
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.1	0.3	10.1	12.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	742	901	-	1068	-	-	666
HCM Lane V/C Ratio	0.057	0.151	-	0.026	-	-	0.266
HCM Control Delay (s)	10.1	9.7	-	8.5	-	-	12.3
HCM Lane LOS	B	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.5	-	0.1	-	-	1.1

HCM 6th TWSC
 5: Blue Mountain Drive & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	14	87	19	12	39	12
Future Vol, veh/h	14	87	19	12	39	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	16	2	12	2	2
Mvmt Flow	16	98	21	13	44	13

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	114	0	120
Stage 1	-	-	-	-	65
Stage 2	-	-	-	-	55
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1475	-	876
Stage 1	-	-	-	-	958
Stage 2	-	-	-	-	968
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1475	-	864
Mov Cap-2 Maneuver	-	-	-	-	864
Stage 1	-	-	-	-	958
Stage 2	-	-	-	-	954

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	892	-	-	1475	-
HCM Lane V/C Ratio	0.064	-	-	0.014	-
HCM Control Delay (s)	9.3	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
6: Blue Mountain Drive & Rainier Street

10/28/2020

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	35	50	5	0	41	11	4	5	0	26	21	59
Future Vol, veh/h	35	50	5	0	41	11	4	5	0	26	21	59
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	58	6	0	48	13	5	6	0	30	24	69

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	61	0	0	66	0	0	246	206	63	201	203	55
Stage 1	-	-	-	-	-	-	145	145	-	55	55	-
Stage 2	-	-	-	-	-	-	101	61	-	146	148	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1542	-	-	1536	-	-	708	691	1002	757	693	1012
Stage 1	-	-	-	-	-	-	858	777	-	957	849	-
Stage 2	-	-	-	-	-	-	905	844	-	857	775	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1542	-	-	1533	-	-	627	670	1000	736	672	1012
Mov Cap-2 Maneuver	-	-	-	-	-	-	627	670	-	736	672	-
Stage 1	-	-	-	-	-	-	832	754	-	930	849	-
Stage 2	-	-	-	-	-	-	819	844	-	827	752	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	2.9	0	10.6	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	650	1542	-	-	1533	-	-	849
HCM Lane V/C Ratio	0.016	0.026	-	-	-	-	-	0.145
HCM Control Delay (s)	10.6	7.4	0	-	0	-	-	10
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.5

HCM 6th TWSC
7: Wellington Avenue & Melrose Street

10/28/2020

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	61	147	19	18	143	59	11	53	11	56	63	45
Future Vol, veh/h	61	147	19	18	143	59	11	53	11	56	63	45
Conflicting Peds, #/hr	1	0	6	6	0	1	2	0	3	3	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	5
Mvmt Flow	66	160	21	20	155	64	12	58	12	61	68	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	220	0	0	187	0	0	597	569	180	569	547	190
Stage 1	-	-	-	-	-	-	309	309	-	228	228	-
Stage 2	-	-	-	-	-	-	288	260	-	341	319	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.345
Pot Cap-1 Maneuver	1349	-	-	1387	-	-	415	432	863	433	445	844
Stage 1	-	-	-	-	-	-	701	660	-	775	715	-
Stage 2	-	-	-	-	-	-	720	693	-	674	653	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1348	-	-	1379	-	-	320	398	856	358	410	842
Mov Cap-2 Maneuver	-	-	-	-	-	-	320	398	-	358	410	-
Stage 1	-	-	-	-	-	-	659	620	-	732	702	-
Stage 2	-	-	-	-	-	-	600	681	-	568	613	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.6			15.8			18.1		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	416	1348	-	-	1379	-	-	451
HCM Lane V/C Ratio	0.196	0.049	-	-	0.014	-	-	0.395
HCM Control Delay (s)	15.8	7.8	0	-	7.6	0	-	18.1
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0.2	-	-	0	-	-	1.9

HCM 6th TWSC
8: Isaacs Avenue & Wellington Avenue

10/28/2020

Intersection						
Int Delay, s/veh	2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Vol, veh/h	62	434	420	20	33	82
Future Vol, veh/h	62	434	420	20	33	82
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	60
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	472	457	22	36	89

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	479	0	-	0	838 241
Stage 1	-	-	-	-	468 -
Stage 2	-	-	-	-	370 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1080	-	-	-	305 760
Stage 1	-	-	-	-	597 -
Stage 2	-	-	-	-	669 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1080	-	-	-	279 759
Mov Cap-2 Maneuver	-	-	-	-	279 -
Stage 1	-	-	-	-	547 -
Stage 2	-	-	-	-	669 -

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	13.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1080	-	-	-	279	759
HCM Lane V/C Ratio	0.062	-	-	-	0.129	0.117
HCM Control Delay (s)	8.6	0.3	-	-	19.8	10.4
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.4	0.4

Intersection						
Int Delay, s/veh	12.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	280	235	68	390	273	87
Future Vol, veh/h	280	235	68	390	273	87
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	Free	-	Stop
Storage Length	-	245	225	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	3	2	3	3	2
Mvmt Flow	304	255	74	424	297	95

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	304	0	664 152
Stage 1	-	-	-	-	304 -
Stage 2	-	-	-	-	360 -
Critical Hdwy	-	-	4.14	-	6.86 6.94
Critical Hdwy Stg 1	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	5.86 -
Follow-up Hdwy	-	-	2.22	-	3.53 3.32
Pot Cap-1 Maneuver	-	0	1254	-	392 867
Stage 1	-	0	-	-	719 -
Stage 2	-	0	-	-	674 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1254	-	369 867
Mov Cap-2 Maneuver	-	-	-	-	369 -
Stage 1	-	-	-	-	719 -
Stage 2	-	-	-	-	634 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	36.2
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	369	867	-	1254	-
HCM Lane V/C Ratio	0.804	0.109	-	0.059	-
HCM Control Delay (s)	44.7	9.7	-	8.1	-
HCM Lane LOS	E	A	-	A	-
HCM 95th %tile Q(veh)	7	0.4	-	0.2	-

HCM 6th AWSC
 10: Wilbur Avenue & Melrose Street

10/28/2020

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	77	59	78	33	88	36	83	236	18	19	224	61
Future Vol, veh/h	77	59	78	33	88	36	83	236	18	19	224	61
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	7	6	4	2	2	3	2	3	6	11	2	2
Mvmt Flow	81	62	82	35	93	38	87	248	19	20	236	64
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	13.3	12	16.6	15.4
HCM LOS	B	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	36%	21%	6%
Vol Thru, %	70%	28%	56%	74%
Vol Right, %	5%	36%	23%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	337	214	157	304
LT Vol	83	77	33	19
Through Vol	236	59	88	224
RT Vol	18	78	36	61
Lane Flow Rate	355	225	165	320
Geometry Grp	1	1	1	1
Degree of Util (X)	0.577	0.391	0.292	0.528
Departure Headway (Hd)	5.854	6.249	6.37	5.942
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	617	574	564	608
Service Time	3.867	4.296	4.421	3.956
HCM Lane V/C Ratio	0.575	0.392	0.293	0.526
HCM Control Delay	16.6	13.3	12	15.4
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	3.7	1.8	1.2	3.1

MOVEMENT SUMMARY

 Site: 11 [PM 2027 Without Project (Site Folder: General)]

Myra Road / Heritage Road / Pine Street Intersection
 Site Category: Roundabout Intersection
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Myra Road														
3	L2	9	2.0	9	2.0	0.160	9.5	LOS A	0.8	21.9	0.37	0.36	0.37	35.7
8	T1	339	4.0	357	4.0	0.160	3.0	LOS A	0.9	22.5	0.36	0.36	0.36	34.0
18	R2	76	2.0	80	2.0	0.160	3.5	LOS A	0.9	22.5	0.35	0.36	0.35	30.8
Approach		424	3.6	446	3.6	0.160	3.2	LOS A	0.9	22.5	0.36	0.36	0.36	33.4
East: Pine Street														
1	L2	71	2.0	75	2.0	0.212	8.3	LOS A	0.8	20.6	0.42	0.50	0.42	31.6
6	T1	65	2.0	68	2.0	0.212	2.2	LOS A	0.8	20.6	0.42	0.50	0.42	32.4
16	R2	81	2.0	85	2.0	0.212	3.0	LOS A	0.8	20.6	0.42	0.50	0.42	30.2
Approach		217	2.0	228	2.0	0.212	4.5	LOS A	0.8	20.6	0.42	0.50	0.42	31.3
North: Myra Road														
7	L2	55	2.0	58	2.0	0.193	9.4	LOS A	1.1	27.4	0.34	0.41	0.34	32.2
4	T1	366	2.0	385	2.0	0.193	2.8	LOS A	1.1	28.2	0.33	0.38	0.33	33.9
14	R2	113	2.0	119	2.0	0.193	3.4	LOS A	1.1	28.2	0.32	0.35	0.32	34.5
Approach		534	2.0	562	2.0	0.193	3.6	LOS A	1.1	28.2	0.33	0.38	0.33	33.8
West: Heritage Road														
5	L2	81	2.0	85	2.0	0.162	11.4	LOS B	0.6	15.2	0.42	0.64	0.42	34.7
2	T1	56	2.0	59	2.0	0.162	4.7	LOS A	0.6	15.2	0.42	0.64	0.42	32.1
12	R2	25	2.0	26	2.0	0.162	4.9	LOS A	0.6	15.2	0.42	0.64	0.42	33.1
Approach		162	2.0	171	2.0	0.162	8.1	LOS A	0.6	15.2	0.42	0.64	0.42	33.5
All Vehicles		1337	2.5	1407	2.5	0.212	4.2	LOS A	1.1	28.2	0.36	0.42	0.36	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: L:\Projects\66000\66230\66230-000\Traffic\Documents\LOS\Myra-Heritage-Pine.sip9

HCM 6th TWSC

1: Lower Waitsburg Road & Northern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	2.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	20	6	0	0	7	26	21	0	32	0
Future Vol, veh/h	0	0	20	6	0	0	7	26	21	0	32	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	12	2	2	2	2
Mvmt Flow	0	0	23	7	0	0	8	30	24	0	36	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	94	106	36	106	94	42	36	0	0	54	0	0
Stage 1	36	36	-	58	58	-	-	-	-	-	-	-
Stage 2	58	70	-	48	36	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	889	784	1037	873	796	1029	1575	-	-	1551	-	-
Stage 1	980	865	-	954	847	-	-	-	-	-	-	-
Stage 2	954	837	-	965	865	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	885	780	1037	850	792	1029	1575	-	-	1551	-	-
Mov Cap-2 Maneuver	885	780	-	850	792	-	-	-	-	-	-	-
Stage 1	975	865	-	949	843	-	-	-	-	-	-	-
Stage 2	949	833	-	944	865	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		9.3		0.9		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	1037	850	1551	-
HCM Lane V/C Ratio	0.005	-	-	0.022	0.008	-	-
HCM Control Delay (s)	7.3	0	-	8.5	9.3	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	116	20	0	0	39	54	70	0	58	0
Future Vol, veh/h	0	0	116	20	0	0	39	54	70	0	58	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	12	2	2	2	2
Mvmt Flow	0	0	132	23	0	0	44	61	80	0	66	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	255	295	66	321	255	101	66	0	0	141	0	0
Stage 1	66	66	-	189	189	-	-	-	-	-	-	-
Stage 2	189	229	-	132	66	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	698	616	998	632	649	954	1536	-	-	1442	-	-
Stage 1	945	840	-	813	744	-	-	-	-	-	-	-
Stage 2	813	715	-	871	840	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	681	597	998	535	629	954	1536	-	-	1442	-	-
Mov Cap-2 Maneuver	681	597	-	535	629	-	-	-	-	-	-	-
Stage 1	916	840	-	788	721	-	-	-	-	-	-	-
Stage 2	788	693	-	756	840	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	12	1.8	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1536	-	-	998	535	1442	-
HCM Lane V/C Ratio	0.029	-	-	0.132	0.042	-	-
HCM Control Delay (s)	7.4	0	-	9.2	12	0	-
HCM Lane LOS	A	A	-	A	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.1	0	-

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	14	23	0	0	23	64	11	0	29	0
Future Vol, veh/h	0	0	14	23	0	0	23	64	11	0	29	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	17	2
Mvmt Flow	0	0	16	26	0	0	26	73	13	0	33	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	165	171	33	173	165	80	33	0	0	86	0	0
Stage 1	33	33	-	132	132	-	-	-	-	-	-	-
Stage 2	132	138	-	41	33	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	800	722	1041	790	728	980	1579	-	-	1510	-	-
Stage 1	983	868	-	871	787	-	-	-	-	-	-	-
Stage 2	871	782	-	974	868	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	790	710	1041	768	716	980	1579	-	-	1510	-	-
Mov Cap-2 Maneuver	790	710	-	768	716	-	-	-	-	-	-	-
Stage 1	966	868	-	856	774	-	-	-	-	-	-	-
Stage 2	856	769	-	959	868	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.5		9.9		1.7		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1579	-	-	1041	768	1510	-
HCM Lane V/C Ratio	0.017	-	-	0.015	0.034	-	-
HCM Control Delay (s)	7.3	0	-	8.5	9.9	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0.1	0	-

HCM 6th TWSC
2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	6.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	77	72	0	0	131	98	37	0	66	0
Future Vol, veh/h	0	0	77	72	0	0	131	98	37	0	66	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	17	2
Mvmt Flow	0	0	88	82	0	0	149	111	42	0	75	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	505	526	75	549	505	132	75	0	0	153	0	0
Stage 1	75	75	-	430	430	-	-	-	-	-	-	-
Stage 2	430	451	-	119	75	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	478	457	986	446	470	917	1524	-	-	1428	-	-
Stage 1	934	833	-	603	583	-	-	-	-	-	-	-
Stage 2	603	571	-	885	833	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	439	408	986	373	420	917	1524	-	-	1428	-	-
Mov Cap-2 Maneuver	439	408	-	373	420	-	-	-	-	-	-	-
Stage 1	834	833	-	538	521	-	-	-	-	-	-	-
Stage 2	538	510	-	806	833	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9		17.3		3.8		0	
HCM LOS	A		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1524	-	-	986	373	1428	-
HCM Lane V/C Ratio	0.098	-	-	0.089	0.219	-	-
HCM Control Delay (s)	7.6	0	-	9	17.3	0	-
HCM Lane LOS	A	A	-	A	C	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.3	0.8	0	-

HCM 6th TWSC
 3: Lower Waitsburg Road & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	2.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	56	19	248	45	29	186
Future Vol, veh/h	56	19	248	45	29	186
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	5	17	0
Mvmt Flow	61	21	270	49	32	202

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	561	295	0	0	319
Stage 1	295	-	-	-	-
Stage 2	266	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.27
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.353
Pot Cap-1 Maneuver	489	744	-	-	1161
Stage 1	755	-	-	-	-
Stage 2	779	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	474	744	-	-	1161
Mov Cap-2 Maneuver	474	-	-	-	-
Stage 1	755	-	-	-	-
Stage 2	755	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	522	1161
HCM Lane V/C Ratio	-	-	0.156	0.027
HCM Control Delay (s)	-	-	13.2	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↘			↘			↘
Traffic Vol, veh/h	252	467	86	26	620	41	0	0	40	0	0	241
Future Vol, veh/h	252	467	86	26	620	41	0	0	40	0	0	241
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	Stop
Storage Length	250	-	0	150	-	20	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	2	2	4	12	2	2	6	2	2	3
Mvmt Flow	265	492	91	27	653	43	0	0	42	0	0	254

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	696	0	-	492	0	0	-	-	246	-	-	327
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.18	-	-	4.14	-	-	-	-	7.02	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.24	-	-	2.22	-	-	-	-	3.36	-	-	3.33
Pot Cap-1 Maneuver	883	-	0	1068	-	-	0	0	742	0	0	666
Stage 1	-	-	0	-	-	-	0	0	-	0	0	-
Stage 2	-	-	0	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	883	-	-	1068	-	-	-	-	742	-	-	666
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.8	0.3	10.1	13.7
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	742	883	-	1068	-	-	666
HCM Lane V/C Ratio	0.057	0.3	-	0.026	-	-	0.381
HCM Control Delay (s)	10.1	10.8	-	8.5	-	-	13.7
HCM Lane LOS	B	B	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	1.3	-	0.1	-	-	1.8

HCM 6th TWSC
5: Blue Mountain Drive & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	14	105	19	12	47	12
Future Vol, veh/h	14	105	19	12	47	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	16	2	12	2	2
Mvmt Flow	16	118	21	13	53	13

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	134	0	130 75
Stage 1	-	-	-	-	75 -
Stage 2	-	-	-	-	55 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1451	-	864 986
Stage 1	-	-	-	-	948 -
Stage 2	-	-	-	-	968 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1451	-	851 986
Mov Cap-2 Maneuver	-	-	-	-	851 -
Stage 1	-	-	-	-	948 -
Stage 2	-	-	-	-	953 -

Approach	EB	WB	NB
HCM Control Delay, s	0	4.6	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	875	-	-	1451	-
HCM Lane V/C Ratio	0.076	-	-	0.015	-
HCM Control Delay (s)	9.5	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
6: Blue Mountain Drive & Rainier Street

10/28/2020

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	43	50	5	0	41	11	4	5	0	26	21	77
Future Vol, veh/h	43	50	5	0	41	11	4	5	0	26	21	77
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	50	58	6	0	48	13	5	6	0	30	24	90

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	61	0	0	66	0	0	275	224	63	219	221	55
Stage 1	-	-	-	-	-	-	163	163	-	55	55	-
Stage 2	-	-	-	-	-	-	112	61	-	164	166	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1542	-	-	1536	-	-	677	675	1002	737	678	1012
Stage 1	-	-	-	-	-	-	839	763	-	957	849	-
Stage 2	-	-	-	-	-	-	893	844	-	838	761	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1542	-	-	1533	-	-	583	651	1000	713	654	1012
Mov Cap-2 Maneuver	-	-	-	-	-	-	583	651	-	713	654	-
Stage 1	-	-	-	-	-	-	809	736	-	924	849	-
Stage 2	-	-	-	-	-	-	791	844	-	803	734	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.3	0	10.9	10
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	619	1542	-	-	1533	-	-	857
HCM Lane V/C Ratio	0.017	0.032	-	-	-	-	-	0.168
HCM Control Delay (s)	10.9	7.4	0	-	0	-	-	10
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.6

HCM 6th TWSC
7: Wellington Avenue & Melrose Street

10/28/2020

Intersection												
Int Delay, s/veh	7.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	61	147	19	18	143	59	11	61	11	70	67	45
Future Vol, veh/h	61	147	19	18	143	59	11	61	11	70	67	45
Conflicting Peds, #/hr	1	0	6	6	0	1	2	0	3	3	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	5
Mvmt Flow	66	160	21	20	155	64	12	66	12	76	73	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	220	0	0	187	0	0	599	569	180	573	547	190
Stage 1	-	-	-	-	-	-	309	309	-	228	228	-
Stage 2	-	-	-	-	-	-	290	260	-	345	319	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.345
Pot Cap-1 Maneuver	1349	-	-	1387	-	-	413	432	863	430	445	844
Stage 1	-	-	-	-	-	-	701	660	-	775	715	-
Stage 2	-	-	-	-	-	-	718	693	-	671	653	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1348	-	-	1379	-	-	316	398	856	349	410	842
Mov Cap-2 Maneuver	-	-	-	-	-	-	316	398	-	349	410	-
Stage 1	-	-	-	-	-	-	659	620	-	732	702	-
Stage 2	-	-	-	-	-	-	595	681	-	557	613	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.6			16.1			19.9		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	413	1348	-	-	1379	-	-	436
HCM Lane V/C Ratio	0.218	0.049	-	-	0.014	-	-	0.454
HCM Control Delay (s)	16.1	7.8	0	-	7.6	0	-	19.9
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.8	0.2	-	-	0	-	-	2.3

HCM 6th TWSC
8: Isaacs Avenue & Wellington Avenue

10/28/2020

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕↕	↕↔		↔	↔
Traffic Vol, veh/h	70	434	420	20	33	86
Future Vol, veh/h	70	434	420	20	33	86
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	60
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	76	472	457	22	36	93

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	479	0	-	0	856 241
Stage 1	-	-	-	-	468 -
Stage 2	-	-	-	-	388 -
Critical Hdwy	4.14	-	-	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	2.22	-	-	-	3.52 3.32
Pot Cap-1 Maneuver	1080	-	-	-	297 760
Stage 1	-	-	-	-	597 -
Stage 2	-	-	-	-	655 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1080	-	-	-	269 759
Mov Cap-2 Maneuver	-	-	-	-	269 -
Stage 1	-	-	-	-	540 -
Stage 2	-	-	-	-	655 -

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	13.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1080	-	-	-	269	759
HCM Lane V/C Ratio	0.07	-	-	-	0.133	0.123
HCM Control Delay (s)	8.6	0.3	-	-	20.4	10.4
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.5	0.4

Intersection						
Int Delay, s/veh	14.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	280	235	68	398	288	92
Future Vol, veh/h	280	235	68	398	288	92
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	Free	-	Stop
Storage Length	-	245	225	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	3	2	3	3	2
Mvmt Flow	304	255	74	433	313	100

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	-	304	0	669	152
Stage 1	-	-	-	-	304	-
Stage 2	-	-	-	-	365	-
Critical Hdwy	-	-	4.14	-	6.86	6.94
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.22	-	3.53	3.32
Pot Cap-1 Maneuver	-	0	1254	-	389	867
Stage 1	-	0	-	-	719	-
Stage 2	-	0	-	-	670	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1254	-	366	867
Mov Cap-2 Maneuver	-	-	-	-	366	-
Stage 1	-	-	-	-	719	-
Stage 2	-	-	-	-	630	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	41.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	366	867	-	1254	-
HCM Lane V/C Ratio	0.855	0.115	-	0.059	-
HCM Control Delay (s)	51.9	9.7	-	8.1	-
HCM Lane LOS	F	A	-	A	-
HCM 95th %tile Q(veh)	8	0.4	-	0.2	-

HCM 6th AWSC
 10: Wilbur Avenue & Melrose Street

10/28/2020

Intersection	
Intersection Delay, s/veh	15.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	82	64	82	33	88	43	83	244	18	19	224	61
Future Vol, veh/h	82	64	82	33	88	43	83	244	18	19	224	61
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	7	6	4	2	2	3	2	3	6	11	2	2
Mvmt Flow	86	67	86	35	93	45	87	257	19	20	236	64
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14	12.4	17.6	16
HCM LOS	B	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	36%	20%	6%
Vol Thru, %	71%	28%	54%	74%
Vol Right, %	5%	36%	26%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	345	228	164	304
LT Vol	83	82	33	19
Through Vol	244	64	88	224
RT Vol	18	82	43	61
Lane Flow Rate	363	240	173	320
Geometry Grp	1	1	1	1
Degree of Util (X)	0.6	0.423	0.31	0.538
Departure Headway (Hd)	5.943	6.341	6.461	6.049
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	606	566	556	595
Service Time	3.986	4.39	4.516	4.094
HCM Lane V/C Ratio	0.599	0.424	0.311	0.538
HCM Control Delay	17.6	14	12.4	16
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	4	2.1	1.3	3.2

MOVEMENT SUMMARY

 Site: 11 [PM 2027 With Project Trips (Site Folder: General)]

Myra Road / Heritage Road / Pine Street Intersection
 Site Category: Roundabout Intersection
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Myra Road														
3	L2	9	2.0	9	2.0	0.175	9.6	LOS A	0.9	24.2	0.38	0.36	0.38	35.7
8	T1	378	4.0	398	4.0	0.175	3.0	LOS A	1.0	25.0	0.36	0.36	0.36	34.0
18	R2	76	2.0	80	2.0	0.175	3.5	LOS A	1.0	25.0	0.35	0.36	0.35	30.8
Approach		463	3.6	487	3.6	0.175	3.2	LOS A	1.0	25.0	0.36	0.36	0.36	33.4
East: Pine Street														
1	L2	71	2.0	75	2.0	0.215	8.4	LOS A	0.8	21.0	0.44	0.51	0.44	31.5
6	T1	65	2.0	68	2.0	0.215	2.3	LOS A	0.8	21.0	0.44	0.51	0.44	32.4
16	R2	81	2.0	85	2.0	0.215	3.0	LOS A	0.8	21.0	0.44	0.51	0.44	30.2
Approach		217	2.0	228	2.0	0.215	4.6	LOS A	0.8	21.0	0.44	0.51	0.44	31.3
North: Myra Road														
7	L2	55	2.0	58	2.0	0.201	9.4	LOS A	1.1	28.9	0.34	0.41	0.34	32.3
4	T1	389	2.0	409	2.0	0.201	2.8	LOS A	1.2	29.8	0.33	0.38	0.33	33.9
14	R2	113	2.0	119	2.0	0.201	3.4	LOS A	1.2	29.8	0.32	0.35	0.32	34.4
Approach		557	2.0	586	2.0	0.201	3.6	LOS A	1.2	29.8	0.33	0.38	0.33	33.8
West: Heritage Road														
5	L2	81	2.0	85	2.0	0.163	11.4	LOS B	0.6	15.3	0.43	0.65	0.43	34.7
2	T1	56	2.0	59	2.0	0.163	4.8	LOS A	0.6	15.3	0.43	0.65	0.43	32.1
12	R2	25	2.0	26	2.0	0.163	5.0	LOS A	0.6	15.3	0.43	0.65	0.43	33.1
Approach		162	2.0	171	2.0	0.163	8.1	LOS A	0.6	15.3	0.43	0.65	0.43	33.5
All Vehicles		1399	2.5	1473	2.5	0.215	4.1	LOS A	1.2	29.8	0.37	0.42	0.37	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	0	28	21	0	36
Future Vol, veh/h	6	0	28	21	0	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	12	2	2	2
Mvmt Flow	7	0	32	24	0	41

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	85	44	0	0	56	0
Stage 1	44	-	-	-	-	-
Stage 2	41	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	916	1026	-	-	1549	-
Stage 1	978	-	-	-	-	-
Stage 2	981	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	916	1026	-	-	1549	-
Mov Cap-2 Maneuver	916	-	-	-	-	-
Stage 1	978	-	-	-	-	-
Stage 2	981	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	916	1549
HCM Lane V/C Ratio	-	-	0.007	-
HCM Control Delay (s)	-	-	9	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	0	49	70	0	42
Future Vol, veh/h	20	0	49	70	0	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	12	2	2	2
Mvmt Flow	23	0	56	80	0	48

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	144	96	0	0	136
Stage 1	96	-	-	-	-
Stage 2	48	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	849	960	-	-	1448
Stage 1	928	-	-	-	-
Stage 2	974	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	849	960	-	-	1448
Mov Cap-2 Maneuver	849	-	-	-	-
Stage 1	928	-	-	-	-
Stage 2	974	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.4	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	849	1448
HCM Lane V/C Ratio	-	-	0.027	-
HCM Control Delay (s)	-	-	9.4	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC

1: Lower Waitsburg Road & Northern Subdivision Access

10/28/2020

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	23	0	71	11	0	32
Future Vol, veh/h	23	0	71	11	0	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	2	2	17
Mvmt Flow	26	0	81	13	0	36

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	124	88	0	0	94	0
Stage 1	88	-	-	-	-	-
Stage 2	36	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	871	970	-	-	1500	-
Stage 1	935	-	-	-	-	-
Stage 2	986	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	871	970	-	-	1500	-
Mov Cap-2 Maneuver	871	-	-	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	986	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.3	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	871	1500
HCM Lane V/C Ratio	-	-	0.03	-
HCM Control Delay (s)	-	-	9.3	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	72	0	82	37	0	55
Future Vol, veh/h	72	0	82	37	0	55
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	4	2	2	17
Mvmt Flow	82	0	93	42	0	63

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	177	114	0	0	135
Stage 1	114	-	-	-	-
Stage 2	63	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	813	939	-	-	1449
Stage 1	911	-	-	-	-
Stage 2	960	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	813	939	-	-	1449
Mov Cap-2 Maneuver	813	-	-	-	-
Stage 1	911	-	-	-	-
Stage 2	960	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.9	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	813	1449
HCM Lane V/C Ratio	-	-	0.101	-
HCM Control Delay (s)	-	-	9.9	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0

HCM 6th TWSC
 3: Lower Waitsburg Road & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	11	108	50	12	115
Future Vol, veh/h	62	11	108	50	12	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	5	17	0
Mvmt Flow	67	12	117	54	13	125

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	295	144	0	0	171	0
Stage 1	144	-	-	-	-	-
Stage 2	151	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.27	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.353	-
Pot Cap-1 Maneuver	696	903	-	-	1320	-
Stage 1	883	-	-	-	-	-
Stage 2	877	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	688	903	-	-	1320	-
Mov Cap-2 Maneuver	688	-	-	-	-	-
Stage 1	883	-	-	-	-	-
Stage 2	867	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.7
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	714	1320
HCM Lane V/C Ratio	-	-	0.111	0.01
HCM Control Delay (s)	-	-	10.7	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0

HCM 6th TWSC
4: Lower Waitsburg Road & US Highway 12

10/28/2020

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗	↗	↘	↗	↘			↗			↘
Traffic Vol, veh/h	137	516	95	28	685	20	0	0	44	0	0	176
Future Vol, veh/h	137	516	95	28	685	20	0	0	44	0	0	176
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	Stop
Storage Length	250	-	0	150	-	20	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	2	2	4	12	2	2	6	2	2	3
Mvmt Flow	144	543	100	29	721	21	0	0	46	0	0	185

Major/Minor	Major1		Major2		Minor1			Minor2				
Conflicting Flow All	742	0	-	543	0	0	-	-	272	-	-	361
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.18	-	-	4.14	-	-	-	-	7.02	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.24	-	-	2.22	-	-	-	-	3.36	-	-	3.33
Pot Cap-1 Maneuver	848	-	0	1022	-	-	0	0	714	0	0	633
Stage 1	-	-	0	-	-	-	0	0	-	0	0	-
Stage 2	-	-	0	-	-	-	0	0	-	0	0	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	848	-	-	1022	-	-	-	-	714	-	-	633
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	2.1		0.3		10.4			13		
HCM LOS					B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	714	848	-	1022	-	-	633
HCM Lane V/C Ratio	0.065	0.17	-	0.029	-	-	0.293
HCM Control Delay (s)	10.4	10.1	-	8.6	-	-	13
HCM Lane LOS	B	B	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	0.6	-	0.1	-	-	1.2

HCM 6th TWSC
5: Blue Mountain Drive & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	14	94	21	12	42	13
Future Vol, veh/h	14	94	21	12	42	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	16	2	12	2	2
Mvmt Flow	16	106	24	13	47	15

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	122	0	130
Stage 1	-	-	-	-	69
Stage 2	-	-	-	-	61
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1465	-	864
Stage 1	-	-	-	-	954
Stage 2	-	-	-	-	962
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1465	-	849
Mov Cap-2 Maneuver	-	-	-	-	849
Stage 1	-	-	-	-	954
Stage 2	-	-	-	-	946

Approach	EB	WB	NB
HCM Control Delay, s	0	4.8	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	879	-	-	1465	-
HCM Lane V/C Ratio	0.07	-	-	0.016	-
HCM Control Delay (s)	9.4	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
6: Blue Mountain Drive & Rainier Street

10/28/2020

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	37	56	6	0	45	12	5	6	0	28	24	63
Future Vol, veh/h	37	56	6	0	45	12	5	6	0	28	24	63
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	43	65	7	0	52	14	6	7	0	33	28	73

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	66	0	0	74	0	0	267	223	71	217	219	59
Stage 1	-	-	-	-	-	-	157	157	-	59	59	-
Stage 2	-	-	-	-	-	-	110	66	-	158	160	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1536	-	-	1526	-	-	686	676	991	739	679	1007
Stage 1	-	-	-	-	-	-	845	768	-	953	846	-
Stage 2	-	-	-	-	-	-	895	840	-	844	766	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1536	-	-	1523	-	-	601	655	989	717	658	1007
Mov Cap-2 Maneuver	-	-	-	-	-	-	601	655	-	717	658	-
Stage 1	-	-	-	-	-	-	819	744	-	925	846	-
Stage 2	-	-	-	-	-	-	803	840	-	812	742	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.8			0			10.8			10.1		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	629	1536	-	-	1523	-	-	833
HCM Lane V/C Ratio	0.02	0.028	-	-	-	-	-	0.161
HCM Control Delay (s)	10.8	7.4	0	-	0	-	-	10.1
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.6

HCM 6th TWSC
7: Wellington Avenue & Melrose Street

10/28/2020

Intersection												
Int Delay, s/veh	7.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	68	162	21	20	158	64	12	59	12	61	69	50
Future Vol, veh/h	68	162	21	20	158	64	12	59	12	61	69	50
Conflicting Peds, #/hr	1	0	6	6	0	1	2	0	3	3	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	5
Mvmt Flow	74	176	23	22	172	70	13	64	13	66	75	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	243	0	0	205	0	0	660	629	197	629	605	210
Stage 1	-	-	-	-	-	-	342	342	-	252	252	-
Stage 2	-	-	-	-	-	-	318	287	-	377	353	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.345
Pot Cap-1 Maneuver	1323	-	-	1366	-	-	376	399	844	395	412	823
Stage 1	-	-	-	-	-	-	673	638	-	752	698	-
Stage 2	-	-	-	-	-	-	693	674	-	644	631	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1322	-	-	1358	-	-	277	364	837	315	376	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	277	364	-	315	376	-
Stage 1	-	-	-	-	-	-	627	594	-	704	684	-
Stage 2	-	-	-	-	-	-	564	661	-	528	587	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.6			17.5			21.5		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	378	1322	-	-	1358	-	-	411
HCM Lane V/C Ratio	0.239	0.056	-	-	0.016	-	-	0.476
HCM Control Delay (s)	17.5	7.9	0	-	7.7	0	-	21.5
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.9	0.2	-	-	0	-	-	2.5

HCM 6th TWSC
8: Isaacs Avenue & Wellington Avenue

10/28/2020

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	↑
Traffic Vol, veh/h	68	480	464	23	37	90
Future Vol, veh/h	68	480	464	23	37	90
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	60
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	522	504	25	40	98

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	529	0	-	0	926
Stage 1	-	-	-	-	517
Stage 2	-	-	-	-	409
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1034	-	-	-	268
Stage 1	-	-	-	-	563
Stage 2	-	-	-	-	639
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1034	-	-	-	241
Mov Cap-2 Maneuver	-	-	-	-	241
Stage 1	-	-	-	-	506
Stage 2	-	-	-	-	639

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	14.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1034	-	-	-	241	731
HCM Lane V/C Ratio	0.071	-	-	-	0.167	0.134
HCM Control Delay (s)	8.7	0.3	-	-	22.9	10.7
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6	0.5

Intersection						
Int Delay, s/veh	22.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	309	259	75	431	302	96
Future Vol, veh/h	309	259	75	431	302	96
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	Free	-	Stop
Storage Length	-	245	225	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	3	2	3	3	2
Mvmt Flow	336	282	82	468	328	104

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	336	0	734
Stage 1	-	-	-	-	336
Stage 2	-	-	-	-	398
Critical Hdwy	-	-	4.14	-	6.86
Critical Hdwy Stg 1	-	-	-	-	5.86
Critical Hdwy Stg 2	-	-	-	-	5.86
Follow-up Hdwy	-	-	2.22	-	3.53
Pot Cap-1 Maneuver	-	0	1220	-	353
Stage 1	-	0	-	-	693
Stage 2	-	0	-	-	644
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1220	-	329
Mov Cap-2 Maneuver	-	-	-	-	329
Stage 1	-	-	-	-	693
Stage 2	-	-	-	-	601

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	67.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	329	847	-	1220	-
HCM Lane V/C Ratio	0.998	0.123	-	0.067	-
HCM Control Delay (s)	85.5	9.8	-	8.2	-
HCM Lane LOS	F	A	-	A	-
HCM 95th %tile Q(veh)	11	0.4	-	0.2	-

HCM 6th AWSC
 10: Wilbur Avenue & Melrose Street

10/28/2020

Intersection	
Intersection Delay, s/veh	18.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	85	64	86	37	97	40	92	261	20	21	248	68
Future Vol, veh/h	85	64	86	37	97	40	92	261	20	21	248	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	7	6	4	2	2	3	2	3	6	11	2	2
Mvmt Flow	89	67	91	39	102	42	97	275	21	22	261	72
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	15.3	13.6	21.3	19.2
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	36%	21%	6%
Vol Thru, %	70%	27%	56%	74%
Vol Right, %	5%	37%	23%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	373	235	174	337
LT Vol	92	85	37	21
Through Vol	261	64	97	248
RT Vol	20	86	40	68
Lane Flow Rate	393	247	183	355
Geometry Grp	1	1	1	1
Degree of Util (X)	0.675	0.459	0.348	0.62
Departure Headway (Hd)	6.191	6.676	6.834	6.29
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	581	537	524	571
Service Time	4.253	4.746	4.912	4.355
HCM Lane V/C Ratio	0.676	0.46	0.349	0.622
HCM Control Delay	21.3	15.3	13.6	19.2
HCM Lane LOS	C	C	B	C
HCM 95th-tile Q	5.1	2.4	1.5	4.2

MOVEMENT SUMMARY

 Site: 11 [PM 2037 Without Project (Site Folder: General)]

Myra Road / Heritage Road / Pine Street Intersection
 Site Category: Roundabout Intersection
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h]	[HV %]	[Total veh/h]	[HV %]				[Veh. veh]	[Dist ft]				
South: Myra Road														
3	L2	9	2.0	9	2.0	0.168	9.6	LOS A	0.9	23.2	0.38	0.37	0.38	35.7
8	T1	373	4.0	373	4.0	0.168	3.1	LOS A	0.9	24.0	0.37	0.37	0.37	33.9
18	R2	84	2.0	84	2.0	0.168	3.6	LOS A	0.9	24.0	0.36	0.37	0.36	30.8
Approach		466	3.6	466	3.6	0.168	3.3	LOS A	0.9	24.0	0.37	0.37	0.37	33.3
East: Pine Street														
1	L2	78	2.0	78	2.0	0.225	8.4	LOS A	0.9	22.1	0.43	0.51	0.43	31.5
6	T1	72	2.0	72	2.0	0.225	2.2	LOS A	0.9	22.1	0.43	0.51	0.43	32.4
16	R2	90	2.0	90	2.0	0.225	3.0	LOS A	0.9	22.1	0.43	0.51	0.43	30.2
Approach		240	2.0	240	2.0	0.225	4.5	LOS A	0.9	22.1	0.43	0.51	0.43	31.3
North: Myra Road														
7	L2	60	2.0	60	2.0	0.202	9.4	LOS A	1.1	29.0	0.35	0.41	0.35	32.2
4	T1	401	2.0	401	2.0	0.202	2.8	LOS A	1.2	29.9	0.34	0.38	0.34	33.8
14	R2	124	2.0	124	2.0	0.202	3.4	LOS A	1.2	29.9	0.33	0.36	0.33	34.4
Approach		585	2.0	585	2.0	0.202	3.6	LOS A	1.2	29.9	0.34	0.38	0.34	33.8
West: Heritage Road														
5	L2	90	2.0	90	2.0	0.171	11.4	LOS B	0.6	16.2	0.44	0.65	0.44	34.7
2	T1	62	2.0	62	2.0	0.171	4.8	LOS A	0.6	16.2	0.44	0.65	0.44	32.1
12	R2	27	2.0	27	2.0	0.171	5.0	LOS A	0.6	16.2	0.44	0.65	0.44	33.1
Approach		179	2.0	179	2.0	0.171	8.2	LOS A	0.6	16.2	0.44	0.65	0.44	33.5
All Vehicles		1470	2.5	1470	2.5	0.225	4.2	LOS A	1.2	29.9	0.37	0.43	0.37	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th TWSC

1: Lower Waitsburg Road & Northern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	20	6	0	0	7	28	21	0	36	0
Future Vol, veh/h	0	0	20	6	0	0	7	28	21	0	36	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	12	2	2	2	2
Mvmt Flow	0	0	23	7	0	0	8	32	24	0	41	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	101	113	41	113	101	44	41	0	0	56	0	0
Stage 1	41	41	-	60	60	-	-	-	-	-	-	-
Stage 2	60	72	-	53	41	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	880	777	1030	864	789	1026	1568	-	-	1549	-	-
Stage 1	974	861	-	951	845	-	-	-	-	-	-	-
Stage 2	951	835	-	960	861	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	876	773	1030	842	785	1026	1568	-	-	1549	-	-
Mov Cap-2 Maneuver	876	773	-	842	785	-	-	-	-	-	-	-
Stage 1	969	861	-	946	841	-	-	-	-	-	-	-
Stage 2	946	831	-	939	861	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.6		9.3		0.9		0	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1568	-	-	1030	842	1549	-
HCM Lane V/C Ratio	0.005	-	-	0.022	0.008	-	-
HCM Control Delay (s)	7.3	0	-	8.6	9.3	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0	-

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	4.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	116	20	0	0	39	56	70	0	62	0
Future Vol, veh/h	0	0	116	20	0	0	39	56	70	0	62	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	12	2	2	2	2
Mvmt Flow	0	0	132	23	0	0	44	64	80	0	70	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	262	302	70	328	262	104	70	0	0	144	0	0
Stage 1	70	70	-	192	192	-	-	-	-	-	-	-
Stage 2	192	232	-	136	70	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	691	611	993	625	643	951	1531	-	-	1438	-	-
Stage 1	940	837	-	810	742	-	-	-	-	-	-	-
Stage 2	810	713	-	867	837	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	674	591	993	529	622	951	1531	-	-	1438	-	-
Mov Cap-2 Maneuver	674	591	-	529	622	-	-	-	-	-	-	-
Stage 1	910	837	-	784	718	-	-	-	-	-	-	-
Stage 2	784	690	-	752	837	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.2		12.1		1.8		0	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1531	-	-	993	529	1438	-	-
HCM Lane V/C Ratio	0.029	-	-	0.133	0.043	-	-	-
HCM Control Delay (s)	7.4	0	-	9.2	12.1	0	-	-
HCM Lane LOS	A	A	-	A	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.1	0	-	-

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	14	23	0	0	23	71	11	0	32	0
Future Vol, veh/h	0	0	14	23	0	0	23	71	11	0	32	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	17	2
Mvmt Flow	0	0	16	26	0	0	26	81	13	0	36	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	176	182	36	184	176	88	36	0	0	94	0	0
Stage 1	36	36	-	140	140	-	-	-	-	-	-	-
Stage 2	140	146	-	44	36	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	786	712	1037	777	717	970	1575	-	-	1500	-	-
Stage 1	980	865	-	863	781	-	-	-	-	-	-	-
Stage 2	863	776	-	970	865	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	776	700	1037	755	705	970	1575	-	-	1500	-	-
Mov Cap-2 Maneuver	776	700	-	755	705	-	-	-	-	-	-	-
Stage 1	963	865	-	848	768	-	-	-	-	-	-	-
Stage 2	848	763	-	955	865	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.5	9.9	1.6	0
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	1037	755	1500	-
HCM Lane V/C Ratio	0.017	-	-	0.015	0.035	-	-
HCM Control Delay (s)	7.3	0	-	8.5	9.9	0	-
HCM Lane LOS	A	A	-	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	0.1	0	-

HCM 6th TWSC
 2: Lower Waitsburg Road & Southern Subdivision Access

10/28/2020

Intersection												
Int Delay, s/veh	6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	77	72	0	0	131	105	37	0	69	0
Future Vol, veh/h	0	0	77	72	0	0	131	105	37	0	69	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2	2	4	2	2	17	2
Mvmt Flow	0	0	88	82	0	0	149	119	42	0	78	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	516	537	78	560	516	140	78	0	0	161	0	0
Stage 1	78	78	-	438	438	-	-	-	-	-	-	-
Stage 2	438	459	-	122	78	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	470	450	983	439	463	908	1520	-	-	1418	-	-
Stage 1	931	830	-	597	579	-	-	-	-	-	-	-
Stage 2	597	566	-	882	830	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	431	401	983	367	413	908	1520	-	-	1418	-	-
Mov Cap-2 Maneuver	431	401	-	367	413	-	-	-	-	-	-	-
Stage 1	830	830	-	533	516	-	-	-	-	-	-	-
Stage 2	533	505	-	803	830	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9		17.6		3.7		0	
HCM LOS	A		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1520	-	-	983	367	1418	-
HCM Lane V/C Ratio	0.098	-	-	0.089	0.223	-	-
HCM Control Delay (s)	7.6	0	-	9	17.6	0	-
HCM Lane LOS	A	A	-	A	C	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.3	0.8	0	-

HCM 6th TWSC
 3: Lower Waitsburg Road & Middle Waitsburg Road

10/28/2020

Intersection						
Int Delay, s/veh	2.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	62	19	254	50	30	188
Future Vol, veh/h	62	19	254	50	30	188
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	4	5	17	0
Mvmt Flow	67	21	276	54	33	204

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	573	303	0	0	330
Stage 1	303	-	-	-	-
Stage 2	270	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.27
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.353
Pot Cap-1 Maneuver	481	737	-	-	1150
Stage 1	749	-	-	-	-
Stage 2	775	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	466	737	-	-	1150
Mov Cap-2 Maneuver	466	-	-	-	-
Stage 1	749	-	-	-	-
Stage 2	750	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	1.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	510	1150
HCM Lane V/C Ratio	-	-	0.173	0.028
HCM Control Delay (s)	-	-	13.5	8.2
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.6	0.1

HCM 6th TWSC
4: Lower Waitsburg Road & US Highway 12

10/28/2020

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗			↗			↗
Traffic Vol, veh/h	260	516	95	28	685	43	0	0	44	0	0	249
Future Vol, veh/h	260	516	95	28	685	43	0	0	44	0	0	249
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	Free	-	-	None	-	-	Stop	-	-	Stop
Storage Length	250	-	0	150	-	20	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	4	4	2	2	4	12	2	2	6	2	2	3
Mvmt Flow	274	543	100	29	721	45	0	0	46	0	0	262

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	766	0	543	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.18	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.24	-	2.22	-
Pot Cap-1 Maneuver	830	0	1022	0
Stage 1	-	0	-	0
Stage 2	-	0	-	0
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	830	-	1022	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	3.8	0.3	10.4	14.6
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	714	830	-	1022	-	-	633
HCM Lane V/C Ratio	0.065	0.33	-	0.029	-	-	0.414
HCM Control Delay (s)	10.4	11.5	-	8.6	-	-	14.6
HCM Lane LOS	B	B	-	A	-	-	B
HCM 95th %tile Q(veh)	0.2	1.4	-	0.1	-	-	2

Intersection						
Int Delay, s/veh	3.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	14	112	21	12	50	13
Future Vol, veh/h	14	112	21	12	50	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	16	2	12	2	2
Mvmt Flow	16	126	24	13	56	15

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	142	0	140
Stage 1	-	-	-	-	79
Stage 2	-	-	-	-	61
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1441	-	853
Stage 1	-	-	-	-	944
Stage 2	-	-	-	-	962
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1441	-	838
Mov Cap-2 Maneuver	-	-	-	-	838
Stage 1	-	-	-	-	944
Stage 2	-	-	-	-	946

Approach	EB	WB	NB
HCM Control Delay, s	0	4.8	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	864	-	-	1441	-
HCM Lane V/C Ratio	0.082	-	-	0.016	-
HCM Control Delay (s)	9.5	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

HCM 6th TWSC
6: Blue Mountain Drive & Rainier Street

10/28/2020

Intersection												
Int Delay, s/veh	5.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	45	56	6	0	45	12	5	6	0	28	24	81
Future Vol, veh/h	45	56	6	0	45	12	5	6	0	28	24	81
Conflicting Peds, #/hr	0	0	2	2	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	52	65	7	0	52	14	6	7	0	33	28	94

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	66	0	0	74	0	0	295	241	71	235	237	59
Stage 1	-	-	-	-	-	-	175	175	-	59	59	-
Stage 2	-	-	-	-	-	-	120	66	-	176	178	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1536	-	-	1526	-	-	657	660	991	720	664	1007
Stage 1	-	-	-	-	-	-	827	754	-	953	846	-
Stage 2	-	-	-	-	-	-	884	840	-	826	752	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1536	-	-	1523	-	-	559	636	989	695	639	1007
Mov Cap-2 Maneuver	-	-	-	-	-	-	559	636	-	695	639	-
Stage 1	-	-	-	-	-	-	796	726	-	920	846	-
Stage 2	-	-	-	-	-	-	775	840	-	789	724	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.1			0			11.1			10.3		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	599	1536	-	-	1523	-	-	840
HCM Lane V/C Ratio	0.021	0.034	-	-	-	-	-	0.184
HCM Control Delay (s)	11.1	7.4	0	-	0	-	-	10.3
HCM Lane LOS	B	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	0.1	0.1	-	-	0	-	-	0.7

HCM 6th TWSC
7: Wellington Avenue & Melrose Street

10/28/2020

Intersection												
Int Delay, s/veh	9.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	68	162	21	20	158	64	12	67	12	75	73	50
Future Vol, veh/h	68	162	21	20	158	64	12	67	12	75	73	50
Conflicting Peds, #/hr	1	0	6	6	0	1	2	0	3	3	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	5
Mvmt Flow	74	176	23	22	172	70	13	73	13	82	79	54

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	243	0	0	205	0	0	662	629	197	634	605	210
Stage 1	-	-	-	-	-	-	342	342	-	252	252	-
Stage 2	-	-	-	-	-	-	320	287	-	382	353	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.345
Pot Cap-1 Maneuver	1323	-	-	1366	-	-	375	399	844	392	412	823
Stage 1	-	-	-	-	-	-	673	638	-	752	698	-
Stage 2	-	-	-	-	-	-	692	674	-	640	631	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1322	-	-	1358	-	-	274	364	837	306	376	821
Mov Cap-2 Maneuver	-	-	-	-	-	-	274	364	-	306	376	-
Stage 1	-	-	-	-	-	-	627	594	-	704	684	-
Stage 2	-	-	-	-	-	-	559	661	-	516	587	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	2.1			0.6			18			24.4		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	376	1322	-	-	1358	-	-	396
HCM Lane V/C Ratio	0.263	0.056	-	-	0.016	-	-	0.543
HCM Control Delay (s)	18	7.9	0	-	7.7	0	-	24.4
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	1	0.2	-	-	0	-	-	3.1

HCM 6th TWSC
8: Isaacs Avenue & Wellington Avenue

10/28/2020

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑	↑
Traffic Vol, veh/h	76	480	464	23	37	94
Future Vol, veh/h	76	480	464	23	37	94
Conflicting Peds, #/hr	0	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	60
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	83	522	504	25	40	102

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	529	0	-	0	944
Stage 1	-	-	-	-	517
Stage 2	-	-	-	-	427
Critical Hdwy	4.14	-	-	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	2.22	-	-	-	3.52
Pot Cap-1 Maneuver	1034	-	-	-	261
Stage 1	-	-	-	-	563
Stage 2	-	-	-	-	626
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1034	-	-	-	232
Mov Cap-2 Maneuver	-	-	-	-	232
Stage 1	-	-	-	-	499
Stage 2	-	-	-	-	626

Approach	EB	WB	SB
HCM Control Delay, s	1.5	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1034	-	-	-	232	731
HCM Lane V/C Ratio	0.08	-	-	-	0.173	0.14
HCM Control Delay (s)	8.8	0.4	-	-	23.7	10.7
HCM Lane LOS	A	A	-	-	C	B
HCM 95th %tile Q(veh)	0.3	-	-	-	0.6	0.5

Intersection						
Int Delay, s/veh	27.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	309	259	75	439	317	101
Future Vol, veh/h	309	259	75	439	317	101
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	Free	-	Stop
Storage Length	-	245	225	-	0	50
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	6	3	2	3	3	2
Mvmt Flow	336	282	82	477	345	110

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	-	336	0	739
Stage 1	-	-	-	-	336
Stage 2	-	-	-	-	403
Critical Hdwy	-	-	4.14	-	6.86
Critical Hdwy Stg 1	-	-	-	-	5.86
Critical Hdwy Stg 2	-	-	-	-	5.86
Follow-up Hdwy	-	-	2.22	-	3.53
Pot Cap-1 Maneuver	-	0	1220	-	351
Stage 1	-	0	-	-	693
Stage 2	-	0	-	-	641
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1220	-	~ 327
Mov Cap-2 Maneuver	-	-	-	-	~ 327
Stage 1	-	-	-	-	693
Stage 2	-	-	-	-	598

Approach	EB	WB	NB
HCM Control Delay, s	0	1.2	79.3
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	327	847	-	1220	-
HCM Lane V/C Ratio	1.054	0.13	-	0.067	-
HCM Control Delay (s)	101.4	9.9	-	8.2	-
HCM Lane LOS	F	A	-	A	-
HCM 95th %tile Q(veh)	12.5	0.4	-	0.2	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	19.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	90	69	90	37	97	47	92	269	20	21	248	68
Future Vol, veh/h	90	69	90	37	97	47	92	269	20	21	248	68
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	7	6	4	2	2	3	2	3	6	11	2	2
Mvmt Flow	95	73	95	39	102	49	97	283	21	22	261	72
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.4	14.1	23.2	20.1
HCM LOS	C	B	C	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %		24%	36%	20%
Vol Thru, %		71%	28%	54%
Vol Right, %		5%	36%	26%
Sign Control		Stop	Stop	Stop
Traffic Vol by Lane		381	249	181
LT Vol		92	90	37
Through Vol		269	69	97
RT Vol		20	90	47
Lane Flow Rate		401	262	191
Geometry Grp		1	1	1
Degree of Util (X)		0.704	0.494	0.368
Departure Headway (Hd)		6.318	6.782	6.949
Convergence, Y/N		Yes	Yes	Yes
Cap		569	529	514
Service Time		4.393	4.867	5.042
HCM Lane V/C Ratio		0.705	0.495	0.372
HCM Control Delay		23.2	16.4	14.1
HCM Lane LOS		C	C	B
HCM 95th-tile Q		5.6	2.7	1.7

MOVEMENT SUMMARY

 Site: 11 [PM 2037 With Project Trips (Site Folder: General)]

Myra Road / Heritage Road / Pine Street Intersection
 Site Category: Roundabout Intersection
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Myra Road														
3	L2	9	2.0	9	2.0	0.183	9.6	LOS A	1.0	25.5	0.39	0.37	0.39	35.7
8	T1	412	4.0	412	4.0	0.183	3.1	LOS A	1.0	26.4	0.38	0.37	0.38	33.9
18	R2	84	2.0	84	2.0	0.183	3.6	LOS A	1.0	26.4	0.36	0.36	0.36	30.7
Approach		505	3.6	505	3.6	0.183	3.3	LOS A	1.0	26.4	0.38	0.37	0.38	33.4
East: Pine Street														
1	L2	78	2.0	78	2.0	0.229	8.5	LOS A	0.9	22.6	0.45	0.52	0.45	31.5
6	T1	72	2.0	72	2.0	0.229	2.3	LOS A	0.9	22.6	0.45	0.52	0.45	32.4
16	R2	90	2.0	90	2.0	0.229	3.1	LOS A	0.9	22.6	0.45	0.52	0.45	30.1
Approach		240	2.0	240	2.0	0.229	4.6	LOS A	0.9	22.6	0.45	0.52	0.45	31.2
North: Myra Road														
7	L2	60	2.0	60	2.0	0.210	9.4	LOS A	1.2	30.5	0.35	0.41	0.35	32.2
4	T1	424	2.0	424	2.0	0.210	2.8	LOS A	1.2	31.5	0.34	0.38	0.34	33.8
14	R2	124	2.0	124	2.0	0.210	3.4	LOS A	1.2	31.5	0.33	0.35	0.33	34.4
Approach		608	2.0	608	2.0	0.210	3.6	LOS A	1.2	31.5	0.34	0.38	0.34	33.8
West: Heritage Road														
5	L2	90	2.0	90	2.0	0.174	11.5	LOS B	0.6	16.4	0.44	0.65	0.44	34.7
2	T1	62	2.0	62	2.0	0.174	4.8	LOS A	0.6	16.4	0.44	0.65	0.44	32.1
12	R2	27	2.0	27	2.0	0.174	5.0	LOS A	0.6	16.4	0.44	0.65	0.44	33.1
Approach		179	2.0	179	2.0	0.174	8.2	LOS A	0.6	16.4	0.44	0.65	0.44	33.5
All Vehicles		1532	2.5	1532	2.5	0.229	4.2	LOS A	1.2	31.5	0.38	0.43	0.38	33.2

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix E

Collision Rate Calculations and Data

Collision Rate Calculations at
Lower Waitsburg Road / Middle Waitsburg Road

Intersection: Lower Waitsburg Rd/ Middle Waitsburg Rd Date 6/8/2020

Ra =	System Wide Average Collision rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
ADT		
		0
		270
		600
		940
M=	Millions of Vehicles for a five year period =	3.30325

Rc= Critical Collision Rate = 1.15

Collision Rate

Number of Collisions =	3
Number of years =	5
Collision Rate =	0.91

$$Rc = Ra + (K * Ra / M)^{.5} - 1 / (2 * M)$$

ADT = 2020 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Collision Rate Calculations at
Lower Waitsburg Road / Clinton Street / US Highway 12

Intersection: Lower Waitsburg Rd / Clinton Street / US 12 Date 6/8/2020

Ra =	System Wide Average Collision rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	730
		6190
		370
		5930
M=	Millions of Vehicles for a five year period =	24.1265

Rc= Critical Collision Rate = **0.84**

Collision Rate

Number of Collisions =	8
Number of years =	5
Collision Rate =	0.33

$$Rc = Ra + (K * Ra / M)^{.5} - 1 / (2 * M)$$

ADT = 2020 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Collision Rate Calculations at
Blue Mountain Drive / Middle Waitsburg Road

Intersection: Blue Mountain Dr / Middle Waitsburg Rd Date 6/8/2020

Ra =	System Wide Average Collision rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	0
		720
		260
		390
M=	Millions of Vehicles for a five year period =	2.50025

Rc= Critical Collision Rate = 1.21

Collision Rate

Number of Collisions =		1
Number of years =		5
Collision Rate =		0.40

$$Rc = Ra + (K * Ra / M)^{.5} - 1 / (2 * M)$$

ADT = 2020 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Collision Rate Calculations at
Blue Mountain Drive / Rainier Street

Intersection: Blue Mountain Drive / Rainier Street Date 6/8/2020

Ra =	System Wide Average Collision rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	830
		480
		90
		760
M=	Millions of Vehicles for a five year period =	3.942

Rc= Critical Collision Rate = 1.11

Collision Rate

Number of Collisions =	0
Number of years =	5
Collision Rate =	0.00

$$Rc = Ra + (K * Ra / M)^{.5} - 1 / (2 * M)$$

ADT = 2020 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Collision Rate Calculations at
Wellington Avenue / Melrose Street

Intersection: Wellington Avenue / Melrose Street Date 6/8/2020

Ra =	System Wide Average Collision rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	1370
		2120
		670
		1990
M=	Millions of Vehicles for a five year period =	11.22375

Rc= Critical Collision Rate = **0.94**

Collision Rate

Number of Collisions =		12
Number of years =		5
Collision Rate =		1.07

$$Rc = Ra + (K * Ra / M)^{.5} - 1 / (2 * M)$$

ADT = 2020 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Collision Rate Calculations at
Wellington Avenue / Isaacs Avenue

Intersection: Wellington Avenue / Isaacs Avenue Date 6/8/2020

Ra =	System Wide Average Collision rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	1020
		4110
		0
		4600
M=	Millions of Vehicles for a five year period =	17.75725

Rc= Critical Collision Rate = 0.87

Collision Rate

Number of Collisions =		6
Number of years =		5
Collision Rate =		0.34

$$Rc = Ra + (K * Ra / M)^{.5} - 1 / (2 * M)$$

ADT = 2020 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Collision Rate Calculations at
Wilbur Avenue / US Highway 12

Intersection: Wilbur Avenue / US Highway 12 Date 6/8/2020

Ra =	System Wide Average Collision rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
ADT		
		4800
		4270
		0
		3360
M=	Millions of Vehicles for a five year period =	22.68475

Rc= Critical Collision Rate = 0.85

Collision Rate

Number of Collisions =		18
Number of years =		5
Collision Rate =		0.79

$$Rc = Ra + (K * Ra / M)^{.5} - 1 / (2 * M)$$

ADT = 2020 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Collision Rate Calculations at
Wilbur Avenue / Melrose Street

Intersection: Wilbur Avenue / Melrose Street Date 6/8/2020

Ra =	System Wide Average Collision rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	2840
		1440
		3120
		1890
M=	Millions of Vehicles for a five year period =	16.95425

Rc= Critical Collision Rate = 0.88

Collision Rate

Number of Collisions =	12
Number of years =	5
Collision Rate =	0.71

$$Rc = Ra + (K * Ra / M)^{.5} - 1 / (2 * M)$$

ADT = 2020 PM Count X 10
PM Peak Hour= Approx. 10% ADT

Collision Rate Calculations at
Myra Road / Heritage Road / Pine Street

Intersection: Myra Road / Heritage Road / Pine Street Date 6/8/2020

Ra =	System Wide Average Collision rate =	0.6
K =	Statistical Constant =	1.645
Average Daily cars passing Through intersection		
	ADT	1510
		2030
		3810
		4710
M=	Millions of Vehicles for a five year period =	22.0095

Rc= Critical Collision Rate = **0.85**

Collision Rate

Number of Collisions =	9
Number of years =	5
Collision Rate =	0.41

$$Rc = Ra + (K * Ra / M)^{.5} - 1 / (2 * M)$$

ADT = 2020 PM Count X 10
PM Peak Hour= Approx. 10% ADT

OFFICER REPORTED CRASHES THAT OCCURRED ON ALL ROADS IN WALLA WALLA COUNTY
01/01/2015 - 12/31/2019

Under 21 U.S. Code § 881 and 21 U.S. Code § 883, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential crash sites, hazardous roadway conditions, or other roadway safety concerns are not subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

JURISDICTION	INTERSECTION NUMBER	COUNTY	CITY	PRIMARY TRAFFICWAY	INTERSECTING TRAFFICWAY	DIST FROM OR TO POINT	COMP DIR FROM REF	REPORT NUMBER	REPORT DATE	REPORT TIME	MILEPOST	REPORT DATE	REPORT TIME	MOST SEVERE INJURY	VEHICLE 1 TYPE	VEHICLE 2 TYPE	JUNCTION RELATIONSHIP	FIRST COLLISION TYPE / OBJECT STRUCK	VEHICLE 1 ACTION	VEHICLE 2 ACTION	VEHICLE 1 COMPASS DIRECTION FROM	VEHICLE 1 COMPASS DIRECTION TO	VEHICLE 2 COMPASS DIRECTION FROM	VEHICLE 2 COMPASS DIRECTION TO	MV DRIVER CONTRIBUTING CIRCUMSTANCE 1 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 2 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 3 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 4 (UNIT 1)	MV DRIVER CONTRIBUTING CIRCUMSTANCE 5 (UNIT 1)						
City Street	9	Walla Walla	Walla Walla	MIDDLE WAITSBURG RD	LOWER WAITSBURG RD	0.25	E	178220	03/25/2019	17:30				No Apparent Injury	Pickup Panel Truck or Vanette under 10,000 lb	Pickup Panel Truck or Vanette under 10,000 lb	Not at Intersection and Not Related	Over Embankment - No Guardrail Present	Going Straight Ahead		East	West	None	None	None	None	None	None	None	None	None				
City Street		Walla Walla	Walla Walla	MIDDLE WAITSBURG RD	LOWER WAITSBURG RD	1.51	NE	178220	03/25/2019	17:30				No Apparent Injury	Pickup Panel Truck or Vanette under 10,000 lb	Pickup Panel Truck or Vanette under 10,000 lb	Intersection Related but Not at Intersection	roadway ditch	Making Right Turn		West	East	None	None	None	None	None	None	None	None	None	None	None		
City Street		Walla Walla	Walla Walla	WELLINGTON ST	LOWER WAITSBURG RD	0.81	E	172920	10/26/2019	14:22				Possible Injury	Passenger Car	Passenger Car	Intersection Related but Not at Intersection	Fire Hydrant	Making Right Turn		West	South	East	West	None	None	None	None	None	None	None	None	None		
State Route		Walla Walla	Walla Walla	012	LOWER WAITSBURG RD			137.69	04/18/2018	18:11				No Apparent Injury	Not Stated	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	East	West	None	None	None	None	None	None	None	None	None		
State Route		Walla Walla	Walla Walla	012	LOWER WAITSBURG RD			137.69	04/23/2018	12:00				No Apparent Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	
State Route		Walla Walla	Walla Walla	012	LOWER WAITSBURG RD			137.69	04/30/2018	10:30				No Apparent Injury	Passenger Car	Pickup Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	
State Route		Walla Walla	Walla Walla	012	LOWER WAITSBURG RD			137.69	05/03/2018	07:50				Possible Injury	Passenger Car	Pickup Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	
State Route		Walla Walla	Walla Walla	012	LOWER WAITSBURG RD			137.69	05/08/2017	17:30				No Apparent Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	North	East	West	East	None	None	None	None	None	None	None	None	None	None	
State Route		Walla Walla	Walla Walla	012	LOWER WAITSBURG RD			137.69	06/06/2018	15:53				No Apparent Injury	Passenger Car	Pickup Panel Truck or Vanette under 10,000 lb	At Intersection and Related	From same direction - one right turn - one straight	Making Right Turn	Going Straight Ahead	Going Straight Ahead	East	North	East	West	None	None	None	None	None	None	None	None	None	None
City Street	5	Walla Walla	Walla Walla	MIDDLE WAITSBURG RD	WELLINGTON AVE	443	F	SW	174659	02/06/2019	15:53			Possible Injury	Pickup Panel Truck or Vanette under 10,000 lb	Pickup Panel Truck or Vanette under 10,000 lb	Not at Intersection and Not Related	From opposite direction - both moving - head-on	Going Straight Ahead	Going Straight Ahead	East	West	East	West	None	None	None	None	None	None	None	None	None		
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	03/16/2019	10:30				No Apparent Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	North	South	West	East	None	None	None	None	None	None	None	None	None	None	
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/06/2019	19:00				No Apparent Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	06/20/2018	13:10				Possible Injury	Passenger Car	Pickup Panel Truck or Vanette under 10,000 lb	At Intersection and Related	Entering at angle	Starting on Traffic Lane	Going Straight Ahead	Going Straight Ahead	South	North	East	West	None	None	None	None	None	None	None	None	None	
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	06/20/2018	17:02				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	East	West	None	None	None	None	None	None	None	None	None	None	
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	06/20/2018	17:02				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East	None	None	None	None	None	None	None	None	None	None	None
City Street		Walla Walla	Walla Walla	MELROSE ST	WELLINGTON AVE			174659	04/19/2019	15:03				Suspected Minor Injury	Passenger Car	Passenger Car	At Intersection and Related	Entering at angle	Going Straight Ahead	Going Straight Ahead	South	North	West	East											